

TOUCH TYPEWRITING
FOR TEACHERS

The following is a Complete List
of Books on Typewriting by Mr
MAXWELL CROOKS—

**TOUCH TYPEWRITING FOR
TEACHERS.** *Second Edition*

**NOTES OF LESSONS ON
TYPEWRITING**

**PITMAN'S GRAMOPHONE
COURSE OF TYPEWRITER
KEYBOARD INSTRUCTION**

**THE KEYBOARD MASTERY
COURSE** *Seventh Impression*

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TION TESTS CIVIL SERVICE**
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MAXWELL CROOKS, DEMONSTRATING HIS WELL-KNOWN GRAMOPHONE METHOD
OF TYPEWRITER KEYBOARD INSTRUCTION

Frontispiece

TOUCH TYPEWRITING FOR TEACHERS

BY

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"NOTES OF LESSONS ON TYPEWRITING"

"THE TYPIST'S COMPANION," "THE BOOK OF THE UNDERWOOD TYPEWRITER," ETC.



SECOND EDITION

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PREFACE

THE purpose of *Touch Typewriting for Teachers*, is to provide the teacher with the necessary knowledge regarding touch operation and with a practical method of instruction, with the hope that a study of the book will enable him to handle his subject authoritatively and to produce efficient operators in his classroom. To achieve this purpose an appeal is made that the subject of typewriting is divided more definitely into the three separate stages, and that the first stage, that of mechanical operation, is given more intensive treatment than is to be found in very many typewriting classrooms.

Some of the chapters of the book may be found, to some extent, controversial; not because the facts contained are actually disputable, but because teachers of typewriting may be said to be divided into two groups. The one group is composed of those teachers who understand the operation of the typewriter. The other group comprises those teachers who, perhaps naturally, regard typewriting only from the aspect of the finished product. It may also be found that a note of criticism is sounded here and there. If this should be the case, it is only because I feel that the opportunities in the typewriting training room for developing the real touch habits should on no account be neglected.

There is, however, one important point on which I may, in common with most expert teachers, be decidedly emphatic, and that is the question of the student's ability with the English language. In the following chapters I take for granted the possession of a good facility with English, or provision for the

essential training. The scope of the present book has not called for a discussion of this vital point, but it can be said definitely that the operative ability of any typist is primarily governed by his or her command of the language.

Apart from this essential, typewriting is so clearly dependent upon the mastery of the machine that I offer no apology for taking a strong attitude in regard to the necessity for proper treatment of the subject in all typewriting classrooms. In the course of over twenty years' active experience in the teaching of the subject, I have never failed to observe that immediately a student lacks interest in the mastery of the details of operation, that student does not succeed in becoming an accurate and rapid typist, and his position in the office depends entirely upon his ability with the typewriting eraser.

I suggest that those typewriting teachers who do not yet see the necessity for intensive keyboard training should give careful study to the suggestions offered in regard to that phase of the work.

MAXWELL CROOKS.

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TOUCH TYPEWRITING FOR TEACHERS

CHAPTER I INTRODUCTION

IN confining the contents of a single Typewriting textbook to the mechanical or operation side of Typewriting, there is a slight danger of conveying the impression that it is the only important part of the subject. This is far from the correct point of view. But, so long as Touch operation is neglected, or indifferently taught, so will the teacher's work, and that of his students, continue to be made unnecessarily long, needlessly hard, and generally inefficient in result.

Operation is naturally to be regarded as the means to an end, but it is still the foundation of that end. And *Touch Typewriting for Teachers* seeks to ensure that the means shall be perfected, that the teacher shall know intimately this part of his subject, and that the student shall be shown the quickest road to expertness instead of being left to find it alone, or failing to find it at all.

To those readers who are looking for guidance and help, I commend a careful study of the following chapters, with the hope that in them will be found the solutions to many of the problems the inexperienced teacher is compelled to face. To the experienced and expert Touch teachers I venture to suggest that a detailed explanation of so widely misunderstood and often neglected a subject will not be deemed inopportune, since it is their own desire to see the Touch method properly

Touch operator, and all the progress made in the operation classroom is nullified.

It should be the duty of every Typewriting teacher to ensure expert instruction in the "mechanics" of the subject first, so that the student shall not be handicapped in the "business office" side of Typewriting by incompetency at the machine. If any teacher finds it impossible to realize the importance of this point, let him go into as many business offices as possible and see for himself, amongst abundant evidence of expert operation, the consequences of *inefficient* operation.

The reader can take confidence in the fact that there is nothing in the present work that is not the outcome of practical teaching of the subject under discussion, and that has not stood this severest of all tests. No teacher's book on any subject, however, can make a successful teacher. It can do no more than provide knowledge of the subject and act as a guide to the teaching of it. The teacher's best learning ground is his classroom, where he may put his knowledge and his teaching plans into practice, and test and adjust according to the results.

CHAPTER II

WHAT IS TOUCH TYPEWRITING ?

§I. ITS IMPORTANCE

IN the days of the old Caligraph, when the operation of a typewriter was a slow and painful process, engaging as a rule but one finger of each hand, there was little or no indication that typewriting would develop into the craft it has become to-day. Typewriting has grown up amongst us of its own accord, side by side with the developments of the machine.

Touch operation is generally regarded as having been first taught so long ago as in 1878, by a Michigan clerk, on one of the early Remington machines, and it was not until about twenty years later that it was first seriously heard of in this country.

The original idea of Touch went so far as to indicate the use of all the fingers, instead of the "closed-hand" and "two-finger" method, and this was the first step towards the efficient operation to which typists are able to attain to-day. The development of Touch Typewriting has apparently been slow. The Typewriter Companies themselves were the pioneers, and individual operators—or, at all events, those who were interested in the mechanical side of their work—were first to experiment with the idea. Eventually the so-called Typewriting schools offered instruction in Touch Typewriting—instruction which was often limited to the provision of a typewriter and a small book of brief instructions and exercises. Very few people knew of the advantages, and the movement only became widespread when

the actual operators realized the immense difference between the new method and the old.

We have to-day reached the stage when neither the operator nor the enlightened employer is content with anything but rapid, accurate and efficient operation, and there is now a keen desire to know more about this important mechanical side of the subject. Education authorities are realizing that proficiency in operation is the essential basis for perfection in production, and in our up-to-date training centres we see improved methods in the classrooms and a wider understanding of all that the term "Touch" implies.

§2. DEFINITION OF " TOUCH "

Touch typewriting is generally accepted to mean the act of typing by sense of touch. If we can imagine the dependence of the sightless upon this sense of touch we get an elementary idea of the Touch method of typewriting. It is not strictly accurate, however, or at all events it is not sufficient, to say that the Touch typist is typing by a sense of touch alone. Only in the beginning stages is the student dependent upon this sense. Another important " sense " is employed—a sense which can only be termed the "sense of location." The best way in which to define Touch Typewriting, therefore, is: the operation of a typewriter without the use of the sense of sight. If teachers and students could be properly impressed with the fact that the use of the eyes is a hindrance instead of an aid to efficient operation, we should see far less indifferent methods in the " operation " class, and far less inefficient work in the business office. This is a fact which will be immediately confirmed by the expert Touch

instructor, and the many skilled operators enjoying employment in business offices to-day.

This sense of location is not a newly developed sense, or peculiar to the operation of a typewriter. It is with us from the moment when, as children, we first find the way with a spoon to our mouth. We develop and use it in all the normal habits of our daily life. It exists with us in such simple acts as the tying of a shoe lace, or the buttoning of a coat, or the finding in the dark of a familiar electric light switch. If these simple acts are examined for a moment the difference between "touch" and this sense of location will be immediately appreciated. We can see how, firstly, the use of our sense of sight is eliminated by using our sense of touch; and, secondly, how even the sense of touch is rendered unnecessary by relying upon the sense of location.

The fact is, of course, that in the simple acts of human behaviour we become habit-trained. We develop our sub-conscious selves through experiment and repetition. We learn the results of certain defined actions, and we know that any deflection from that definition will produce a wrong or false result. If we waver from the natural impulse which directs the hand to the mouth, we will not reach the mouth. If we make any other movements than those which we know will result in a correctly tied shoe lace, we know we will fail to secure a neat bow or to tie a knot at all. In any case, and whatever simple act we take as an example, we may have *learned* through our sense of sight or our sense of touch, but the day comes when we no longer *use* either, and the result is accurately accomplished by our sub-conscious selves, subject only to the birth of the impulse.

It will be seen, therefore, that Touch Typewriting ceases to be completely a method of operation by the sense of touch immediately we have formed certain definite habits. A technical definition of Touch Typewriting is this: the mentally mechanical operation of a typewriter, as distinct from the conscious sight-directed method—or, briefly, “sub-conscious operation.” How this sense of location is applied to Touch Typewriting, and how it is developed, is discussed later in this book.

§3. WHAT “TOUCH” IMPLIES

The above definition, however, does no more than explain the term “Touch.” There is much more implied by the term than the capacity to use all the fingers and to touch the right keys, without looking at them. First of all, the operation of a typewriter is not limited to the operation of the character keys. The sense of location is required to be developed in regard to parts of the machine away from the keyboard. Secondly, the development of Touch Typewriting has brought with it considerable improvement in the act of Touch—that is, the manner in which the keys are depressed.

Touch Typewriting may therefore be said to involve three separate habit-developed processes, namely—

1. Key-finding : i.e. the ability to find the correct keys at will, by the sense of location alone.
2. The act of Touch or Key Depression : i.e. the development of the correct muscular and nerve habits to produce certain correct effects.
3. Manipulation : i.e. the ability to perform in the right way, at the right moment, and without the use

of the sense of sight, the several mechanical operations involved in the production of a word or line or page of typewritten matter.

Each of these three branches of the work requires individual attention and study. They are "problems" to be solved first by the teacher and secondly by the student under the guidance of the teacher. Each branch must be mastered separately. The failure of the old method of instruction, that of attempting to do everything at once—i.e., key-finding, key-depression and mechanical manipulation—with no endeavour to concentrate upon each individual problem in turn, has still to be impressed upon the unskilled typewriting teacher, and it is to be hoped that the method of instruction outlined in this book is assisting in its complete banishment.

§4. ADVANTAGES OF THE "TOUCH" METHOD

The chief advantages of the Touch method may be summed up as—

1. Conservation of Energy.
2. Increased Physical and Mental Efficiency.
3. Increased Speed and Accuracy.
4. Preservation of Health.

Conservation of Energy

A typist writing by the Sight method expends about six times as much physical energy in the hands alone as that expended by the Touch typist. It is an interesting point to note that the Sight typist always appears to be typing at a very fast rate; but that is not necessarily the case. The reason for this deceptive appearance is that, as the operation of the machine is not a mechanical process, the mind, the eyes, the head, and the muscles of the hand and arm

are all in use, drawing from the typist a large amount of physical effort and mental alertness, and demanding a large expenditure of nervous energy.

Picture the Touch typist by way of contrast. He sits comfortably at his machine, his body relaxed and still, his vision focused upon the "copy." Only his hands move, and those with a minimum of effort, as his fingers operate the keys. His only additional movement is the intermittent return of the carriage—again with the minimum of effort. He is, in his work, a study in the conservation of energy.

Mental Efficiency

Mentally he has need to concentrate only on his copy. The machine is under the control of his sub-consciousness. His conscious self is reading, transcribing and testing the literal accuracy of his notes. A typist whose mind is not concerned with the mechanical details of a machine is unquestionably the best copyist. There is more room for the exercise of the intelligence upon the important details of the correspondence and other typewritten work of the office. That is one reason why the enlightened business office employer qualifies his advertisements in the "Situations Vacant" column of the daily newspaper with the condition "Must be a *Touch* typist." No typist who is bothered with the details of working a machine every minute of his operating hours is efficient either as a typist or as an office worker.

Speed and Accuracy

The properly trained Touch typist is capable of greater speed than the Sight typist, for many reasons. Firstly, his fingers are working rhythmically, and consequently more regularly; secondly,

the fingers have not so much distance to travel; thirdly there is a continuity of work which is impossible if the eyes have to alternate between copy and keyboard and carriage—as is the habit and almost the necessity of the Sight typist. Further, in the training of the Touch typist there are other mental habits formed which go towards accelerating the operating speed of the typist. Greater accuracy is also a natural outcome of Touch operation, though the inexpert always fail to understand this. But it must follow that if the mind and fingers are properly trained to find and strike the right keys, the liability for error is less than if the fingers are working practically at the direction of the sight and therefore always at the end of newly created nervous impulses.

Health

It is sufficient, perhaps, to say in regard to the health of all typists that few Touch typists complain of aching eyes and head and limbs at the end of a strenuous day's work at the machine. The reason why the Sight typist is liable to suffer in this way is too obvious to need discussion. The outstanding cause, of course, is the severe strain upon the eyesight through the continuous change of focus and the watching of the movements of the machine, added to which there is the strain upon the muscles of the neck. And, if for no other reason, it is surely the duty of the Typewriting teacher to allow only Touch-trained students to leave his classroom to undertake the strenuous work of shorthand-typists in a business office.

CHAPTER III

SCOPE OF THE TYPEWRITING TEACHER

§I. A SIMPLE OR COMPLEX SUBJECT

TYPEWRITING can be regarded as a simple or a complex subject. In the past it has suffered a considerable handicap because, instead of an exact analysis being made of its component parts, it has been treated as a general, complex subject, indefinable because of its association with other subjects. Some of our educational syllabuses, for instance, still betray the tendency to lose sight of certain essentials in the study, and to believe that a programme based upon the production of the various typewritten forms is all that the subject necessitates. They do not, as a general rule, discuss provision for training in the operation of the machine.

The cause of this defect is that there is a great deal of confusion extant as to the scope of the subject. The authorities are unable to define the term, to state where Typewriting ceases to be a single subject, or where it merges into Business Methods and Office Routine. Consequently, the average educational syllabus provides, under the title of Typewriting, an excellent course of Business Training in its relation to the typewriter, and the actual details of typewriting instruction are left to take care of themselves.

In our private schools the same conditions do not necessarily hold. At the same time there is considerable variety in the treatment of the subject, and, generally speaking, the treatment is dependent

upon the actual typewriting experience of the proprietor. The mistake arises from a disinclination to consider the necessity for expert operation of the machine, and this is nothing more than the survival of the original conception of the subject, when the typewriter in the office was not only an innovation but was not so efficient a machine that anything exceptional in regard to operation could be expected of it.

§2. NECESSITY FOR LIMITATION OF SCOPE

It may be laid down as a general axiom that nothing should be included in the curriculum of the Typewriting class that is not directly concerned with the operation of a typewriter. This does not mean that the training of the prospective business typist is to be restricted to operation, but it does mean that for the sake of improved methods of instruction in Touch Typewriting a stricter line should be drawn between Typewriting and Office Routine. True correlation comes to an end immediately either of the subjects suffers through the diffusion of concentration. The term "typewriting" should be restricted to the operation of the machine, and thus enable the subject to receive its necessary quota of attention, whilst the many additional phases of the typist's instruction should be treated as a specialized part of the Office Practice Course.

The effect of such a method would be two-fold. It would place Touch Operation in its proper category—the parallel almost of Penmanship. It would also prevent the use of the machine for the details of the Office Practice Course until real—and not assumed—proficiency in Touch operation has been attained. It must not be forgotten that the

typewriter, *once operative skill has been acquired*, stands in only slightly different relation to the work of an office from that of the pen, but that all the time operation is not mechanical it is demanding a share of the office worker's thought that the pen never requires. It is only in the typewriting classroom that the remedy can be sought, and it is to be hoped that this aspect of the question will receive even greater attention than it is, fortunately, already receiving.

This limitation of the work of the Typewriting Teacher, however, would probably result in too intensive a method for the average business-training school, and therefore the nearest approach to the ideal is the treatment of the subject adopted by most up-to-date schools.

§3. DIVISION OF THE SUBJECT

This treatment begins with the sound principle that the basis of all successful training for the typist is perfect mechanical ability at the machine, and it will be a happy day for the future business office typist and the employer when this method is adopted in all our training centres. The expert Touch Typewriting teacher, as a rule, is appalled at the number of schools in which the students are little nearer this stage of mechanical skill at the end of their Course than they were after the first few weeks of the Course. The cause lies solely in the refusal to give mechanical training its due prominence in the right stage of the student's training, namely, the beginning stage, and to keep it in that state of prominence until the stage is reached when it can be relegated to the background almost to the same degree as the pen.

The logical division of the subject, therefore, can be accepted as follows—

1. Mechanical skill.
2. Practical application of skill.
3. Business methods in relation to the typewriter.

There is a distinct line of demarcation between the first two stages, and the student is not allowed to waste the time of his Course by attempting the work of the one stage before he has acquired the operative skill demanded by the preceding stage. It should be borne in mind that this scheme takes no cognizance of any other method of operation than the Touch method, without which mechanical or sub-conscious operation of the machine would be an impossibility. It is important also to remember that without intensive work even the Touch method will fail to produce the mechanically perfect operator. Each successive stage of operation must be brought up to the 100 per cent standard in the classroom, in order that, (1) the student is operating the machine without conscious thought at the end of the first stage, and (2) the student is not concerned with the way in which to use his machine or his mechanical skill on the various types of matter at the end of the second stage.

Critics of this method ignore the fact that all the time the student is attempting to apply an incomplete mechanical knowledge to the other problems of typewriting, he is not only delaying the mastery of those problems, but he is developing bad typewriting habits to a degree which will render them almost ineradicable. It is not difficult to see that by intensive concentration upon mechanical operation considerable time is saved in the student's Typewriting Course. How this is accomplished is

shown in the succeeding chapters. It is not so easy for the non-Touch teacher to see that the Touch method is training the student in something more than keyboard operation; that is to say, the student is actually learning to subjugate the whole of the details of machine operation to his subconsciousness. Fortunately, however, the standards of instruction and of student efficiency have considerably improved during the past few years and the employer is beginning to reject the inefficient applicant, who succeeds in securing a post only because the demand for efficient typists is still greater than the supply.

§4. MECHANICAL SKILL

It will be apparent to the reader that the aim must be to limit the student's training at the machine to the development of mechanical skill until he knows his machine and its capabilities thoroughly, and until he can operate it with skill. After all, it is only common sense to accept the fact that the work of a typist is primarily dependent upon a machine and the degree of skill attained in its operation. Yet one frequently meets the teacher who, when experiencing the return of an unskilled operator from the office to the classroom, fails to understand the reason, claiming that so-and-so is "one of his best educated and most intelligent students, and an asset to any office." If the teacher spent a day in the typewriting department of a large and busy office he would soon discover that the two essentials for any typist—education and intelligence—are useless *on the typewriting side of the office* without operative skill, including speed, accuracy and general mechanical ability.

Mechanical Skill may be said to comprise—

1. Key-finding, and operation.
2. Touch and technique.
3. Manipulation of devices.
4. Knowledge of mechanism and care of machine.

This is but a brief classification, and the details of the work are covered in the following chapters. The expert Typewriting teacher will insist upon a complete mastery of one point at a time, in the way clearly outlined herein. He will leave nothing to chance. He will not confuse and hinder the student by allowing him, for instance, to attempt to master the operation of the keyboard with fingers untrained as to touch. He will guard throughout the whole of the mechanical training against anything which tends to prevent concentration, and, consequently, the complete formation of the correct typewriting habits. Bearing in mind that the objective is to make the machine the mechanical and least important part of the typist's future work, he will realize that, since the act of typewriting is nothing more or less than the making mechanical of many small habits, the mental impression of each of those habits in turn must be made as deeply as possible. Until he trains his students upon this policy he cannot produce typists.

§5. PRACTICAL APPLICATION

The practical application of mechanical skill will begin immediately the student has proved himself capable of operating the machine upon straightforward copying matter at a reasonable rate of speed with complete accuracy. That rate of speed may be high or low, according to the producing powers of

the teacher. Forty words a minute—not less—may be taken as a standard, and if the training is based upon the plan given in my *Notes of Lessons on Typewriting* the length of time taken to produce that degree of skill will not be too long.

Skill in operation is dependent primarily upon correct training and secondly upon the number of practice hours available, and those teachers who put into operation the instruction methods referred to above should watch their results and keep careful records, with a view to ascertaining their individual potentialities and improving or adjusting their methods. It is not forgotten that the classroom is subject to many local conditions, such as the type of student, the personality of the teacher, time-tables, equipment, and provision for students' practice.

In the Practical Application stage of the work, the student will be trained in all the details of typewriting production. It is at this point that the teacher will begin with the commercial letter, and take his students through all the details of the typewritten page, in such forms as business and legal documents, tabulated matter, figure work: and it is here that he will also begin the most important part of the typist's training—the development of the mental capacity to translate from the shorthand outline into the typewritten word without loss of speed either in transcription or in operation.

§6. BUSINESS METHODS

It must be remembered that the subject under discussion is Typewriting, and not the general subject of Business Methods or Office Routine, or, to give it its modern designation, Commercial Practice. At the same time, although the line

between the practical application of mechanical skill and Business Methods in relation to the typewriter is a very fine one indeed, the division is an essential one, for this reason—

In the work of the second stage, the student is asked still to concentrate upon operation. He is not concerned with the many details of Business Methods in which the typewriter is essential, and therefore he is not losing time at the machine. It is to the third stage that such details as manifolding, stencil cutting and duplicating should be relegated, together with any office duty which demands something more than sub-conscious thought at the machine. The exact nature of these items and their method of treatment will be found in the chapters relating to this stage of the work. Meanwhile, the important point to watch throughout the instruction is that *during the whole of the time that the student is being trained in the formation of correct typewriter habits he must not be asked to divide his attention between operation and the ultimately more important work of the typist.*

The up-to-date school already bases its course of typewriting instruction upon this plan, although many fail in its achievement solely because there is not sufficient intensive training in the first stage. The teachers are prone to hasten the transition from the first to the second stage, with the hope that the defects of the work of the first stage will disappear in the, perhaps, more interesting work of the second. If any readers are able to trace their own failure to this defect, a careful study of the chapter on the Act of Touch is earnestly recommended. The method to avoid is that which, in effect, is no method at all, namely, the unorganized

instruction and indiscriminate practice offered in schools where the student may be said to be practising the keyboard throughout the whole of his course and compelled to leave the school for the office without reaching the expert stage.

The scope of the Typewriting Teacher may be summed up in this way. First and foremost he must be prepared to train his students to become expert touch operators: he must instruct them in all the variety of work capable of production on the typewriter: and he must be in a position to prepare them for the complete duties of a business office typist. In the provision of the complete mental equipment of the prospective shorthand-typist there is much more to be done than this, but it lies outside the scope of Typewriting, and is included in the Typewriting classroom only to the detriment of the subject.

CHAPTER IV

ORGANIZATION OF CLASSES

§1. HOW TO BEGIN

It is not possible to deal specifically with the way in which the typewriting classes should be organized, since schools which include Typewriting in their curriculum vary so extensively in regard to scope and size. But there are certain definite principles and standards upon which the typewriting teacher is able to build up his own organization according to the conditions under which he is compelled to work. These conditions are governed mainly by such factors as type of school, accommodation, duration of Course, hours of instruction, equipment, number of students, additional subjects for which the typewriting teacher is responsible, and so on. The teacher would find it useful to make an analysis of his own conditions, putting down on paper the several details, and, with an exact idea of all that he wishes to accomplish before him, scheme out a workable plan which will enable him to make best use of his material, however poor it may be, and ensure a reasonable chance of successful accomplishment.

A proper grouping of the instruction is the teacher's first consideration. The broad division of the subject has already been discussed in the previous chapter, but, for purposes of successful class work, a closer division is essential.

§2. ESSENTIAL GRADING OF INSTRUCTION

The most successful method of grading typewriting instruction is to allow the "grade" to be stationary, and to arrange for the students, irrespective of classes, to "pass out" as they reach the successful end of each grade. The nature of the instruction permits of this plan, and because of the differences in natural aptitude and progress which will be found in students working upon any mechanical subject, it is infinitely more satisfactory than the method which arranges for the complete class or group to be passed from one stage or grade to the next.

Bearing in mind the wide grading of the subject given in Chapter III, it will be found that the subject falls into the following sub-divisions—

MECHANICAL SKILL SECTION

1st Grade—Beginners' Class.

Introduction to machine.

Acquisition of Touch.

Memorizing and practice of Guide Keys.

Finger practice exercises on Guide Keys.

2nd Grade—Keyboard Training.

Gradual "memorizing" of keyboard.

Finger practice exercises only.

Perfection of Touch.

3rd Grade—Finger Practice Exercises.

Alphabetical and easy sentences.

Development of Space Bar, Shift Key and Carriage

Return operation.

4th Grade—Finger facility in slow speed, increasing to 20 words a minute.

5th Grade—Speed up to, say, 40 words a minute.

PRACTICAL APPLICATION SECTION

1st Grade—Correspondence; envelope addressing; use of tabulator in correspondence.

2nd Grade—Tabulated Matter; legal documents; specifications; any type of matter developing skill in additional manipulation of the machine.

- 3rd Grade*—Typing from Printed Shorthand; shorthand notes; manuscript.
- 4th Grade*—Advanced matter of all kinds. Removal of all restriction as to degree of difficulty in matter to be copied or amount of thought required in manipulation.
- 5th Grade*—Instruction in mechanical details and care of machine

BUSINESS METHODS SECTION

- 1st Grade*—Correction of Errors; manifolding; invoicing; balance sheets, similar advanced tabulations
- 2nd Grade*—Stencil Cutting and Duplicating, Advanced work of any kind, particularly such as may be dictated by local business conditions

§3. THE IMPORTANT POINTS

The above is a brief summary in order to illustrate the method of grading the work. There are two important points to observe. The first will be more readily understood by teachers who possess a thorough understanding of Touch Typewriting, or who make a study of Chapter XIV, of this book. This first point—one that has already been emphasized—is that the work in the different grades is designed to secure the complete mastery of the graduated touch habits, and that any departure from the suggested grading of the work will hinder, if not totally destroy, the formation of those essential habits.

The second point is that the whole of the work in the Mechanical Skill Section and the Practical Application Section is subjugated to the development of operation of the typewriter and should be treated definitely from that point of view.

Throughout the whole of the work of the second and third sections provision should be made, first, for an additional Grade or Class, namely a Speed Development Class. This should be treated as a

thing apart from all other work, and a complete understanding of the working of the plan will be obtained as the reader proceeds through the several chapters of this book.

Organization of classes is essentially a question for personal solution in the individual school, but so far as the normal business-training school is concerned, the grading of the typewriting work upon these lines will be found capable of practical accomplishment. The object of this chapter, however, is solely to indicate the grading of the work, and the reader is recommended to study the scheme of instruction given at the end of this book in order to see how the grading is put into operation in a typical business-training school. When he has compared the conditions described with those which exist in his own case, the teacher can plan a timetable on similar lines, according to the limitations with which he may be faced.

The attention of readers whose work is confined to Evening Continuation Schools is directed to Chapter XXIX which deals with the specific requirements of these schools.

§4. INSTRUCTION HOURS

How is the intensive work, demanded for the successful teaching of Touch Typewriting, to be accomplished, having regard to the other subjects of a shorthand-typist's course? Let us first examine these other subjects. The average Business Training School provides six subjects—the six essential subjects for the work of the shorthand-typist, viz.—Shorthand, Typewriting, English, Business Methods, Book-keeping and Arithmetic. To these some schools add one language.

In importance, Shorthand and Typewriting stand first. English, a wide subject in a Business School, ranks in importance only according to the individual attainments of the student. Fortunately for the teacher, both Shorthand and Typewriting display whatever weaknesses there may be in the individual student's English ability, and the best he can do in regard to English, in view of the practical nature of the training, is to direct the student's work towards the remedying of these weaknesses. Book-keeping is often refused by the Shorthand and Typewriting Course student, but it is usually possible, and very wise, to persuade the prospective shorthand-typist to take the subject up to the Intermediate Stage. The same observation applies to Arithmetic. It will be seen, therefore, that in the Shorthand-typist's Course, the Business School is not doing wrong in arranging a time-table around the two principal subjects, Shorthand and Typewriting.

Both these subjects demand intensive treatment ; that is to say, rapid success is dependent upon daily instruction and daily practice, and since the object of the Course is to produce Shorthand-typists and not general clerks, the subjects should, in a week of thirty instruction hours, be apportioned, roughly, as follows—

Shorthand	.	.	.	.	.	10 hours.
Typewriting	.	.	.	.	.	10 hours
Business Methods and English	.	.	.	.	.	5 hours
Bookkeeping	.	.	.	.	.	3 hours
Arithmetic	.	.	.	.	.	2 hours.

So-called educationists, needless to say, would frown at the subversion of other subjects to Shorthand and Typewriting, and—in the above case—to the total absence of instruction in such important subjects as

Commercial Geography and Economics. It is almost unnecessary to state that Business Training Schools, and Business Training Departments in other schools, are vocational training centres, and do not or should not seek to compete with the splendid education centres our twentieth century provides. Further, the important training which the Business School offers is that which the truly education centres cannot adequately provide without sacrificing the fundamentals and essentials of education. Therefore, let no Business School teacher fear that he is doing wrong in giving prominence to the two subjects which are the *raison d'être* of his existence.

On the other hand, the question of the educational attainments of the students he accepts for this vocational training is one which is too large for discussion here, except that it should be laid down as a definite principle that no Business School teacher should fall to the temptation to provide "education" in the academic sense of the term. If he finds himself saddled with a student whose educational attainments in the fundamentals are below a certain standard that student will fall below the standard essential for a position in an office. The student should be advised to attend an institution where he or she can complete the essential preparation for vocational training. Finally, it must not be forgotten by the school proprietor and the class teacher that Shorthand and Typewriting are capable of acquirement in a comparatively short space of time. Where this is not proved to be the fact the methods of instruction should be very carefully examined.

CHAPTER V

THE PROBLEM OF THE BEGINNER

§1. THE STUDENT'S ATTITUDE

EVERY beginner who enters the Typewriting Class should be treated in a systematic and carefully planned manner. There should be no haphazard introduction to the machine. The old-fashioned method, which was no method at all, of leaving the student alone with a machine and a guide book was responsible for much of the failure of the typewriting instruction of the past. The first essential for successful instruction is that the beginner should be taught Touch methods from the very first lesson. This may be put more strongly still—it is of the utmost importance that the beginner should have no opportunity for acquiring incorrect methods of operation.

X: (P(G)) G8

Unfortunately the student's first attitude towards the machine is not unlike that of a child with a new toy. He is fascinated with its movement ; he likes to see it work ; he cannot resist the temptation of causing words to appear upon the paper and of watching those words appear. It is a debatable point whether the student should or should not be allowed to satisfy his curiosity and his wonderment before he begins his study. In my opinion, he should not be. He might be given plenty of opportunity for watching advanced students or experts at work, when he might have cause for wonder and might become imbued with a desire to emulate the examples he has seen. And he certainly would, in

such a case, be too dissatisfied with his own untrained ability to wish to sit down and type merely in order to see the letters and words appearing slowly and painfully upon the paper.

The Typewriting teacher should have no compunction in laying down strict laws and rules in regard to what may and what may not be done with the machine. The expert teacher will, therefore, preface his first lesson with a few brief remarks in regard to the task which lies before the student. He will explain that there are many steps to climb upon the ladder to expertness. He will point out the possibility of many false steps, and the danger of those false steps. He will use his best powers of persuasion to show the student that Touch operation can be acquired only by implicit obedience to his instructions. It is in this spirit alone that the ground for successful instruction can be prepared.

§2. THE BEGINNERS' CLASS

Beginners must be segregated from the more advanced students. They should not be placed with a class which has been at work for some weeks, or which is composed of students working at different stages of the course. The widely adopted plan of having a beginners' room, and keeping students in that room until they are capable of accomplishing a certain "passing-out" test, is the nearest approach to the ideal. The beginner, by which I mean the student seeing and operating a typewriter for the first time, should be provided for by being instructed and allowed to practise alone or in company with other beginners. This, say many teachers, is an impracticability. It should not be allowed to be an impracticability in any school professing to teach

Touch methods. It is unquestionably impracticable to attempt to teach Touch methods to beginners surrounded by students working at various stages of operation. Therefore, the teacher should keep his beginners in distinct groups according to the different stages of the introductory lessons.

It is, of course, well known that the average teacher is disposed to give his attention to the bright or interesting section of his students, or to care about the progress of his class as a whole and not that of the individual or backward students. Because of this it is very often found in the average school that the students in the beginning stages of typewriting are placed in the hands of an incompetent junior, or a teacher knowing nothing whatsoever of Touch methods. The beginner should be placed in the hands of a trained Touch teacher, and none other, for it is in this stage alone that time can be saved and the student placed upon the successful road to Touch operation.

Definitely, there should be a beginners' room, or, in the case of a small school, a beginners' class. That is to say, a definite hour of the time-table should be set aside, when required, for instruction for the new-comer or new-comers. Strange though the advice may sound to the professional teacher, if the exigencies of the time-table make this difficult or impossible on the exact day of the new-comer, the introductory lesson should be postponed. The student's time lost in this way will be far less than that which will be lost if the student is allowed to pick up the operation in his own way. If Touch operation is required, he will spend more time in ridding himself of incorrect habits than in acquiring correct habits. It is a well-known fact that the

expert Touch teacher often prefers to teach a new-comer to a typist endeavouring to change from the Sight to the Touch method.

The reason for this necessity for care in the student's introduction to the machine is simply that the learner is about to acquire an entirely new set of habits, and that if these habits are wrongly formed the possibilities of reaching the expert stage are practically nil. For this reason the beginner should be given individual attention, and at his first lesson he should do nothing without the supervision of his teacher. If the teacher is faced with a number of beginners, concerted work should not be attempted until the essential details have been explained. The "class" of this nature should be presented with a brief explanation of Touch operation followed by a brief demonstration by the teacher before the class. The individual students should then be briefly introduced to the first movements, one at a time, the students being required to carry out each detail under complete supervision.

§3. NATURE OF INSTRUCTION

To what extent should the instruction given in the student's introduction to the machine be allowed to go? How often, in the past, did one see it laid down in a syllabus that the first lesson should consist of an explanation of the various parts of the machine, learning the names of the parts, memorization of the keyboard, acquisition of the first two rows of keys—to mention only a few of the details!

How could all this be done in one lesson? What room did it leave for the acquisition of the correct habits required for Touch operation? What did it matter to the beginner, eager to be able to operate

the machine, what such and such a part of the machine is called and its exact function? And a final question—is there not plenty of time for all this during the Course of instruction and after the more important elements have been mastered?

It will be obvious, therefore, that the Touch type-writing teacher must make it his first duty to teach Touch operation. He will do so in very small stages. It is almost unnecessary to state that Touch operation cannot be acquired as a whole; it must be split up into the many small items of detail, and one detail at a time must be thoroughly understood, correctly acquired, and practised again and again until it becomes a conscious habit and eventually a sub-conscious habit. Unless the work is attacked in this way, it is doomed to failure from the beginning.

The student's introduction to the machine, therefore, should contain the minimum of instruction. It is essential for the student to know the two broad divisions of the machine: the keyboard and the carriage. He must be shown that the carriage is moved by operation of the keys. He need know little more than that for the moment, since the object is to get him to operate the keys correctly. Therefore, in the first lesson, the student will not be asked to tax his memory in this way. In the following chapter the exact scope and nature of this first lesson will be made clear.

The teacher should plan his lesson in order to cover the following points—

Preliminary talk and demonstration:

1. Brief explanation of Touch operation.
2. Brief explanation of Movement of the Carriage.
3. Brief explanation of Action of the Key and

Type-bar in relation to letter impression and carriage movement.

Instruction and first practice :

4. Position at machine.
5. Position of hands at keyboard.
6. Securing the ability to find and touch the guide-keys.

It will be noted that there is no suggestion that the student should be asked to memorize the position of letters. He is asked only to become familiar with the keys which fall beneath his fingers when placed in the position he is asked to assume whenever he begins to type, and to begin to learn the finger action on those keys. Except for the passing information on other details, in none of which is he asked to be either knowledge-perfect or action-perfect, he is concentrating upon one point only, and that point is the first essential point in Touch operation. This method will be adopted with every lesson in Touch operation. It is built upon the logical basis that the first essential in the study of typewriting is mechanical ability and the first essential in mechanical ability is key depression. Reference to the chapters on the different parts of touch operation will be necessary for a complete understanding of this point.

§4. TEACHER AND STUDENT

Let us examine for the moment the student's position at this moment of his introduction to the machine. He is anxious to become a typist ; he knows, or has been advised, that the only way to become an efficient typist is to learn Touch operation. In the teacher's brief talk to the student it has been made clear to him that there is a right and a wrong way to operate the machine. He has been

made to understand that by placing his trust in his instructor, he can acquire the right way. He has been told that the eyes are not essential for the operation of the typewriter; that he will very naturally wish to use his eyes, and that he must defeat this natural wish. It will not have been disguised from him that in this point alone he is up against an old habit of looking at the writing; for with the pen, if our eyes are not fixed upon the paper, our writing tends to deteriorate or at least to deflect from the straight line. The student is then asked to do certain things. He cannot fail to be impressed, first with the nature of the task before him, and secondly with the necessity for concentrated practice.

The critic of such treatment as this will say that the work is being given too serious an aspect. The answer to such criticism is simply that the work cannot be treated too seriously at this stage. Typewriting is a difficult subject to acquire, either in its mechanical stage or in its application stage. And if the beginner has been enabled in the first lesson to lose his natural idea that the typewriter is a toy, or that skill is acquired by practice alone, then the teacher's task has already been considerably lightened, and the student has become disciplined in regard to the new work. After all, the typewriting teacher is better without the student who persistently thinks that the machine can be operated in any haphazard fashion.

CHAPTER VI

THE FIRST LESSON

§I. PRELIMINARY HABITS

IN Chapter II, the three separate processes involved in the act of typewriting were defined as (1) Key-finding, (2) Key Depression, and (3) Manipulation. These three processes involve the acquisition of certain habits, which must be correctly formed, practised and passed into the sub-conscious mind, so that the typist may use his conscious thought upon the nature of his work instead of its performance. In the learning and practice stages of the study of Typewriting each process must be taken in turn and mastered, not only to a point of real skill, which is capable of development only when the several habits may be practised as a whole, but to a point of definite mental control. It has already been shown that it is a distinct error to attempt to instruct the learner in the whole series of habits at once.

Although the first real problem for the learner is that of key-finding, there must be, as a preliminary to this, some instruction in key-depression, which is dealt with fully in the chapter upon the Act of Touch. In this present chapter we are discussing only the necessary habits which must be formed in the first lesson. These habits are, actually, preliminary habits. They constitute a kind of jumping-off ground. In their acquisition the student is partly learning to form his mechanical relationship with the machine and partly the initial stage of his operation of the machine.

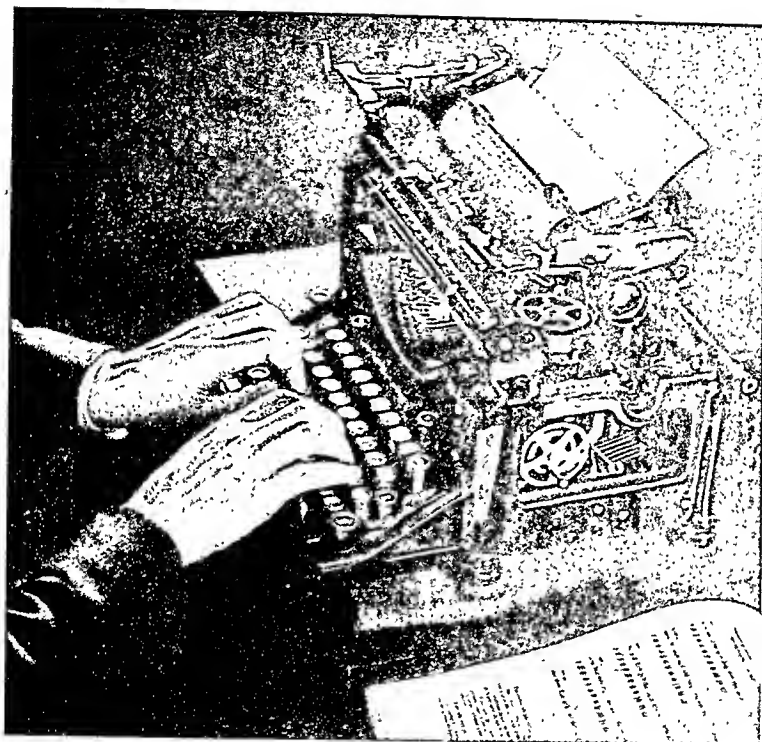
In other words, the operator's body, aided by the sub-conscious mind, is destined to become a part of the machine, so far as operation is concerned, in much the same way as the old mechanical piano player which was placed in front of the pianoforte keyboard so that it correctly played the notes with somewhat the same action as the human fingers.

The "conscious" mind, or the intelligence, is thus left free to read and think and to translate into mechanical action.

§2. POSITION AT MACHINE

✓ In point of fact, the first essential for the development of the several typewriting habits is the establishment of a fixed or standard position of the body at the machine, and of the forearm and fingers at the keyboard. Without this fixed position there is never the same relationship between the operator and the machine, and Touch habits become impossible.

It has been the habit of many textbooks to set down definite measurements for the height of the typewriting table and the typist's chair, such as a 28 in. table and a chair 18 in. high. The true standard of measurement, however, lies with the student, and the measurements given can claim to be gauged only by the average measurements of the ordinary student. Exactly what is meant is this, that the student should be seated so that the chair height coincides with the length of the leg from the inside of the knee to the floor. That is to say, the student should not be sitting with the feet off the floor, or with the legs compelled to be stretched out: and the height of the table should coincide



POSITION AT MACHINE

with the height of the seated figure to the elbows. It is not practicable, perhaps, for the average school to provide a variety of differently sized chairs and tables, and although we have with us excellent adjustable chairs, which every typewriting school should use, we have not yet been provided with the adjustable typewriting table. The above details, however, will enable the uninformed typewriting teacher to judge how near the correct posture his individual students are able to adopt with the equipment at his disposal. And, although it is not recommended, positions can, of course, to some extent be adjusted with the aid of foot-rests, or cushions, or typewriter mats.

The teacher should ensure that the student is sitting at the right distance from the machine. If the student is sitting well upon the chair with the chair rest supporting the lower part of the back, the forearms raised from the elbows, and the elbows only very slightly projecting forward and just clear of the sides of the body, there should then be a gentle inclination of the forearms towards the machine, parallel with the slope of the keyboard, and ending with the tips of the bent fingers resting upon the second row of keys.

This will be the first consideration of the teacher, and he will not regard the time spent upon it as wasted if he is an operator himself and knows the disadvantages at which the typist is placed in rapid operation through sitting "above" his machine, or crouched over the keyboard, or in any other inexpert position. The trunk of the body should be upright, or nearly so. There may be a slight forward lean, but on no account should the trunk lean backward. Nor should there be any feeling of strain in any part

of the body. Ease and comfort, allied with correct distance, are the main features of position at the machine.

§3. BRIEF ESSENTIALS

In the first lesson there are two essentials of manipulation to be understood, namely, the insertion of the paper and the return of the carriage. There need not, at this early stage, be any more than brief instruction in either of these performances. The student will not be inserting more than one sheet of paper an hour for some time to come, and in the first lesson the return of the carriage need not be rapidly accomplished. Therefore the teacher may only ensure that the paper is correctly handled, and that the carriage is returned with one hand, and with the finger, or fingers, or the thumb, whichever is demanded by the model of machine in use and the method the teacher may prefer. No time should be spent on discussion of margin stops, adjustment of paper, etc., though the student may be shown the simple task of placing the paper holders correctly just inside the edges of the paper. |

This suggestion that any points which may be regarded as not of immediate importance should be dealt with briefly does not mean, of course, that the teacher should refrain from imparting any information he thinks may appeal to the intelligence of his student. The successful teacher is he who knows how to punctuate expert instruction in detail with simple reasons why, and to give occasional glimpses of the goal the student is striving to reach.

Once the correct position is established, the student will be advised never to begin his practice at any time before assuring himself that he adopts the same position. Train him to spend some moments at

each sitting in testing his position. Remind him of some of our great pianists who, on entering the concert platform, keep the audience in suspense, whilst making perfectly sure that they are sitting in correct relationship to their own particular keyboard.

✓ §4. THE GUIDE KEYS

The next step is to introduce the student to the Guide Keys. Just as there must be a fixed relationship between the typist and the machine, so must there be a fixed relationship between the fingers and the keyboard. This relationship, in the learning stages, is established by actual contact between the four fingers of each hand and the eight keys which constitute the guide keys. The relationship of the fingers with these keys "a s d f" and "; l k j" must be firmly established in the student's mind before any attempt at keyboard mastery is made. It is from these keys that all the other keys are found by the sense of touch, the sense of direction or distance, or the sense of location. Therefore, the teacher will be well advised to help the student in every possible way to overcome any feeling of monotony and to conquer any desire to proceed to new work until he can assume correct position at the machine and place his fingers automatically upon the correct guide keys.

This latter necessity requires more attention at the early stages than is given in the average typewriting class. The complaint one hears occasionally from teachers that the students *will* look at the keys in order to secure the correct position is due to the absence of training or drill in finding the position by touch. In the absence of this drill it is certainly

a difficult accomplishment, but if repeated drill is given in the following way it will be found that the hands and the fingers will go "automatically" to the right row of keys and upon the right keys—

1. Let the hands rest in the lap. ✓
2. Bring the hands up to front bar of machine. ✓
3. Feel space bar with the fingers.
4. Pass fingers to first row of keys. ✓
5. Pass fingers to second row of keys. ✓
6. Feel with little fingers for outside keys.
7. Bring right little finger in to the second (semi-colon) key.
8. Distribute fingers in correct order from little fingers to first.

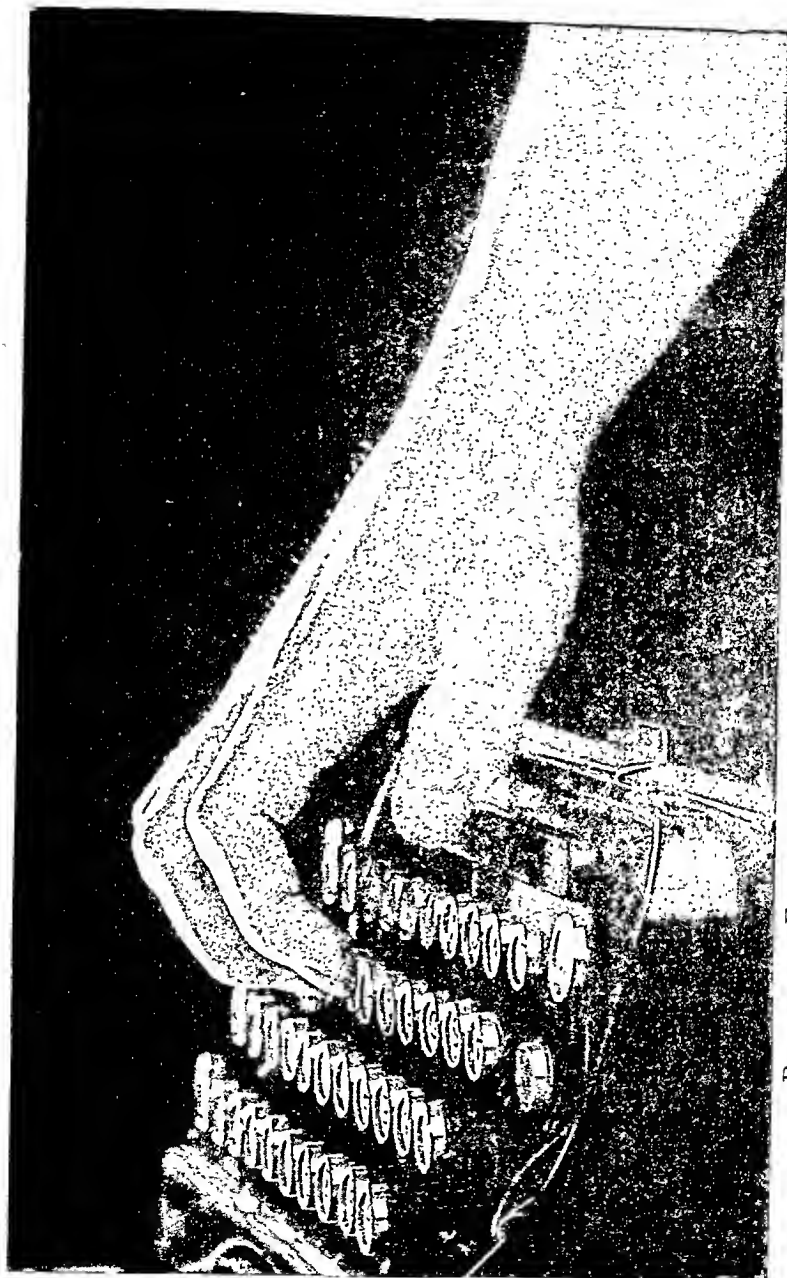
The student must be trained to feel that there are no gaps between his fingers—one of the faults the teacher will find in the early practice of this drill. Gradually the drill can be reduced to bringing the hands to the first row of keys immediately, and finally to the second row of keys immediately, until eventually it is natural to place the hands immediately in the correct position.

Critics of the Touch system often ask "Why waste all this time? Why not look at the keyboard, at all events to establish this position?" The answer is that during the operation of the keyboard the hands are occasionally compelled to be thrown out of position, and the habit of looking would have to be used to re-establish this position. As a matter of fact, the sense of "distance" is being trained. The fingers, hands and arms *feel* right, once the mind has been trained, with the result that the expert can bring his hands from any part of his body or of the machine immediately to the correct guide key or "home" position. In the first lesson, however, it is sufficient to ensure that the student will follow the method outlined above.

§5. TOUCHING THE KEYS

During the beginning stages of the work the student will be allowed to rest his fingers lightly on the guide keys. When the touching of the correct keys has been established, the next step is to secure the correct bend of the fingers. Get the student to assume a "scratching" attitude with the hands at the keyboard, then tell him to loosen the muscles without altering the attitude of the hand. The fingers will then be found to be bent naturally, and that is the best condition of the fingers for typewriting. The illustration on page 41 shows not only the correct bend of the fingers, but also the relation of the forearm and hands to the keyboard. It will be seen that the forearm and the back of the hand form one "straight" line in the same slope as the keyboard, and that the fingers form the completion of an exact curve of the hand. Observe also that the hand is level. It does not tilt sideways, which is a common fault with students *and*, occasionally, advanced typists.

The student will now be asked to lift his left fourth finger and depress it with a sharp blow, and immediately return his finger to the level of the other fingers. Let him realize he is typing the letter "a" by so doing. Repeat with the right fourth finger. Then the first finger of each hand, and gradually the whole of the fingers. Bear in mind that the object at the moment is to secure the correct action of the finger rather than to learn where the letters are. It is immaterial in what order the fingers are used. The habits are entirely new, and if the fourth fingers are of less strength than the other fingers, as is the case with some people, then the more they are practised the better. It is as well to



POSITION OF FINGERS, HAND, AND FOREARM IN RELATION TO KEYBOARD

assure students who complain of their fourth fingers that they are not being asked to do a very stupendous task !

Immediately the teacher is satisfied that the fingers are adopting the right kind of blow, practice can be begun upon some such exercise as that given on page 43 (first group). The teacher will be advised to have the exercises written upon a board, or to provide his students with typed copies. The more the eyes are employed, the better for the student. When any typewriting is being done without copy the teacher should persuade the students to keep their eyes upon himself ; in such a case the teacher will do well to imitate the correct movements with his own fingers in the air.

The operation of the space bar can be taken with this lesson, if there is time, but as a general rule it will be found that an hour's instruction is well occupied in establishing position at the guide keys and in making a beginning with the training of finger action.

There will be many faults throughout the lesson ; they cannot be eradicated in one lesson, nor can they all be dealt with at once. Independent action of the fingers will not be immediately obtained, and such faults as keeping the fingers on the keys throughout the whole of the depression, involuntary depression of the wrong finger, or of two keys at once—all these will be obvious to the least experienced of teachers. Truly is the task of the typewriting teacher one which demands an undying patience. But that patience must be preserved, for the task is a harder one for the student at this stage of the work, and it is in the hands of the teacher to make or mar the future expert. That is one reason why the best

GUIDE KEY EXERCISE

aaaaaaaa	;;;;	aaaaaaaa	;;;;	aaaaaaa	;;;;	aaaaaaa	;;;;
aaaaaaaa	;;;;	aaaaaaaa	;;;;	aaaaaaaa	;;;;	aaaaaaaa	;;;;
aaaaaaaa	;;;;	aaaaaaaa	;;;;	aaaaaaaa	;;;;	aaaaaaaa	;;;;
ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj
ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj
ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj	ffffff	jjjjjj
ssssss	llllll	ssssss	llllll	ssssss	llllll	ssssss	llllll
ssssss	llllll	ssssss	llllll	ssssss	llllll	ssssss	llllll
ssssss	llllll	ssssss	llllll	ssssss	llllll	ssssss	llllll
dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk
dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk
dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk	dddddd	kkkkkk
a;a;a;a	fj fj fj	s s s s s	dk d k d k d	a;a;a;a	fj fj fj	s s s s s	dk d k d k d
a;sldkf	a;sldkf	a;sldkf	a;sldkf	a;sldkf	a;sldkf	a;sldkf	a;sldkf
asdfdsa	lkjkl	asdfdsa	lkjkl	asdfdsa	lkjkl	asdfdsa	lkjkl

and the experienced teacher should be in charge of the beginners. I have seen young junior teachers reduce girl students to tears and boy students to rebellion through lack of tact and loss of patience and temper. It is not a difficult task to the teacher who knows what he wants to secure from his students and how to secure it.

CHAPTER VII

MASTERY OF THE KEYBOARD

§I. EXPERIMENTAL METHOD

IN the past the majority of typewriting teachers have held the opinion that the only way to master the keyboard is to learn with the eyes the exact location of the keys, either at the machine itself or with the aid of a chart. This method is open to question, at all events in the case of students who are acquiring the Touch method of operation, and it is again only a survival of the old-fashioned "sight" method of learning and operation. It is logical to assume that if the eyes are not to be used in the operation of the machine, they should not be used in the learning process. It is a fact that if the student is allowed to master the keyboard by experiment with his fingers, instead of memorizing it as one might a poem, the process is not only more rapid but also more certain. Further, the student who is properly trained in this way experiences less temptation to look at the keyboard.

Immediately the teacher is satisfied with the student's preliminary finger action, he will concentrate upon keyboard mastery. No advancement can be made in typewriting skill until this is accomplished, and the expert teacher excludes from his mind and from his student's mind all thoughts as to further mechanical knowledge, speed and the practical use of the machine, until the student is capable of operating the keys with complete accuracy and at a slow rate.

The teacher's problem is, how can this be best and most rapidly accomplished? The task is possibly not so difficult as it is monotonous—to the teacher. After all, it is nothing but the establishing of definite movements of the fingers in order to secure definite results. Since all memory training is simply the association of new ideas with the old, the mastery of the keyboard depends entirely upon the complete establishment of each small section of the work and the identity of each new section with the old. The only difference between the "memorization" of the keyboard—to use the accepted term—and the memorization of a piece of poetry, is that with the keyboard the memory is concerned with muscular activity instead of solely a mental association of words. That is to say, the student is not learning where letters are placed, but the correct movements of his fingers in order to secure those letters. The necessity to write the word "then," for instance, requires a memory which will instruct certain fingers to move in certain directions and in a certain order.

From this it will be obvious to the reader that however perfectly the keyboard may be "learned" or memorized from a chart, so that the student could perhaps sit down and "write it out by heart," he would still be quite unable to use that memory without looking at the machine, and he would still have to learn to type, or, to put it another way, he would still have to establish what we may call his finger-movement memory.

§2. ONE THING AT A TIME

No more need perhaps be said to the thoughtful teacher to show that the direct road to keyboard

mastery is by way of training the mind to associate the various letters with the several finger movements. The secret of success in this part of the work lies in insisting upon absolute accuracy with each section of the keys in turn, commencing with the guide keys. Nor is success possible with a haphazard treatment of the keys. Textbooks vary a little in regard to the method of attacking the keyboard, and it is possible to read theories as to which finger should be trained first, and how the keyboard should be divided for practice purposes. The individual finger for starting the training is immaterial, for all the fingers have to work. And whether the keyboard is divided in rows from left to right or from top to bottom is also immaterial. There is every argument in favour of regarding the keyboard as divided into four lateral rows, since the fingers naturally assume a lateral position in relation to the keyboard.

But any method which does not start with the eight guide keys—the natural horizontal position for the hands and the central position both in learning and in expert operation—and which does not gradually build up from these guide keys definite associations with the rest of the keyboard, is bound to result in loss of time in the training stage and in lack of accuracy in the speed development stage. Keyboard memory—by which, I repeat, is meant finger movement memory and not mere picturization—is primarily dependent upon this process of gradual association with the central position of the fingers and upon nothing else.

The teacher's first care, as already stated, must be to ensure the accurate operative powers of his students with the eight guide keys, as dealt with in

the preceding chapter. Immediately this is accomplished, the teacher must seek the best means of sectionizing the keyboard. He must first decide how large a group of letter keys should be mastered at once, and he must base his student's practice upon exercises which shall compel concentration upon this one necessity. The following plan is recommended—

1st Stage—Guide Keys

2nd Stage—Association of G and H with Guide Keys, thus completing central row of keys.

3rd Stage—Association of 4th and 1st finger keys in 3rd row.

4th Stage—Association of remainder of 3rd row of keys with guide keys

5th Stage—Association of 4th and 1st finger keys in first row.

6th Stage—Association of remainder of 1st row of keys with guide keys.

7th Stage—Association of figures (4th row) with guide keys.

It will be seen that, for keyboard mastery purposes, nothing so far has been attempted beyond the association of the various keys with the guide keys. The object of the training at this stage is to get the right "reach" (i.e. direction and distance) for the individual fingers from the guide keys. Nothing can train the memory more rapidly, and additional time is being saved because the fingers are beginning to identify themselves with the keys they are operating.

§3. THE CORRECT PRACTICE

An examination of the suggested exercises on pages 49 and 53 will demonstrate how the letter associations are formed, but teachers are strongly recommended to follow closely the exercises and instructions given in *The Keyboard Mastery Course*.¹ Objection is very often raised to the working of exercises that are concerned with mere letters and

¹ *The Keyboard Mastery Course* (Pitman) by Maxwell Crooks

GUIDE KEY ASSOCIATIONS

asadaafag	; l; k; j; h	asadaafag	; l; k; j; h	asadaafag
adaafagaf	; k; j; h; j	adaafagaf	; k; j; h; j	adaafagaf
afagafag	; j; h; j; h	afagafag	; j; h; j; h	afagafag
agfdsaga	; hjkl; h; h	agfdsaga	; hjkl; h; h	agfdsaga
gasdfgag	h; lkjh; h	gasdfgag	h; lkjh; h	gasdfgag
gfasdfgf	hj; lkjhj	gfasdfgf	hj; lkjhj	gfasdfgf
sasdsfsg	l; lkjlh	sasdsfsg	l; lkjlh	sasdsfsg
dadsdfdg	k; klkjh	dadsdfdg	k; klkjh	dadsdfdg
fafsdfg	j; jljkh	fafsdfg	j; jljkh	fafsdfg
alakajah	; s; d; f; g	alakajah	; s; d; f; g	alakajah
slksjsjh	lalsldlf	slksjsjh	lalsldlf	slksjsjh
dldkdjdh	kakskdkf	dldkdjdh	kakskdkf	dldkdjdh
jajsjdjf	f; flfkfj	jajsjdjf	f; flfkfj	jajsjdjf
hahshdhf	g; glgkgj	hahshdhf	g; glgkgj	hahshdhf
dash sash	fash gash	dash sash	fash gash	dash sash

appear to have no relation to words. The same objection is often heard in the music-teaching profession. There is but one reply to such objections—the learner must be concerned solely with individual letters in the preliminary keyboard stage and for some little time beyond that, whether he is actually writing words or not. The piano student cannot aspire to “tune” until he has finished establishing his relationship between the individual keys and, in his case, the printed notes on his page of music and his ear. The Touch typist is compelled to learn by associating every individual key with every other individual key, and until that power is with him he cannot be accurate even at the slowest rate of operation.

The *long* way to develop this individual association is by means of words, through which media he may or may not cover the whole of the ground, but in any case he cannot do so with concentration upon the definite individual associations. With such exercises as are recommended herein, the student is being trained in actual letter combinations which are parts of the words he will presently be seeking to write. To use the piano analogy again, the piano student's early exercises are designed in order that he shall make himself acquainted with the keyboard, and not necessarily for the production of music.

The association of the various keys with the guide keys is only a part of keyboard training. It does not, as a rule, result in a complete keyboard knowledge or finger movement memory. It does establish a sense of direction from the guide keys. The student's ability must be gradually developed so that the fingers obtain the correct sense of reach or direction

in any combination of letters. It has been my experience that whereas teachers are reluctant to retain students upon this further process of keyboard training, the students themselves are usually very interested and keen upon the method and the exercises set them. The cause of the students' happy attitude may lie in the fact that they have been able to see their rapidly growing skill and accuracy, and have become convinced of its soundness as a foundation of future work. The fact is, of course, that mentally their task has been easy because the mind has not been compelled to do anything but to cross the several carefully bridged gaps.

In developing the further letter associations, carefully selected words may be used with advantage as well as the suggested finger exercises, and it is at this stage that the teacher may seriously begin to develop the sense of rhythm in the practice and drills (See Chapter XII on Rhythm).

Throughout this keyboard training, it is wise that the teacher should keep in mind the fact that he is doing no more than teaching the keyboard. He is not endeavouring to produce operative skill. He is not developing *correct* touch, although, as stated in Chapter VI, he will secure a sufficiently correct touch and independent finger action for the slow key depression involved in this part of the work. There will be no suggestion of speed. But there will be, as far as is possible, continuity of key depression, and this can be secured by the simple act of calling out the letters as they appear in the exercise, and so timing the depression of the keys.

If the gramophone method is not used, the teacher should use care in this "timing." The teacher's eyes should be upon the student's fingers and work.

THIRD ROW KEY ASSOCIATIONS

aq af	fr ra	rq ra	fa ; p	; j ju u;	up jp u;	j;
aq ; p	af ; j	fr ju	ra u;	rq up	fq jp ra u;	fa j ;
qa fa	rf ar	qr qf	ar p;	j; u;	u pu pj ; u ; j	
qa p;	fa j ;	rf uj	ar ; u	qr pu	qf pj ar ; u af ; j	
ar sr	dr fr	gr at	st dt	ft gt	; u lu ku ju hu ; y	ly ky jy hy
ra rs	rd rf	rg ta	ts td	tf tg u;	ul uk uj uh y;	yl yk yj yh
ar ; u	sr lu	dr ku	fr ju	gr hu at ; y	st ly dt ky ft jy gt hy	
ra u;	rs ul	rd uk	rf uj	rg uh ta y;	ts yl td yk tf yj tg yh	

GENERAL KEY ASSOCIATIONS

aa ab	ac ad	ae af	ag ah	ai aj	ak al	am
an ao	ap aq	ar as	at au	av aw	ax ay	az
aa ba	ca da	ea fa	ga ha	ia ja	ka la	ma
na oa	pa qa	ra sa	ta ua	va wa	xa ya	za
ba bb	bc bd	be bf	bg bh	bi bj	bk bl	bm
bn bo	bp bq	br bs	bt bu	bv bw	bx by	bz

NOTE

The complete alphabet may be treated in this way, with special practice on difficult combinations.

just why this thinking is essential—but it should be done briefly. It is a big mistake in the operation class for the teacher to spend a lot of time talking to the students. Be brief, be clear, be workmanlike, and inspire faith and confidence.

§4. THE "HOME" POSITION

Throughout the keyboard training, the student's fingers will rest lightly upon the Guide Keys, partly in order that the association with the other keys can be properly established, but more particularly that the central position for the hands can be thoroughly established. Not until the student displays perfect accuracy with the complete keyboard in slow practice, and with the fingers "anchored" in this way, can the next step be taken, which is that of typing the exercises with the fingers hovering over, and not touching the guide keys. The teacher will watch carefully for this moment, and, in class work, when the students are typing with the free fingers he will observe the individual students carefully and insist upon the guide keys being touched again for a time in the case of any students who prove themselves unable to retain the "hovering" position at the guide keys and in consequence betray inaccuracy. When the exercises can be accomplished slowly in the "hovering" position, the student can be regarded as having learned or memorized the keyboard. As will be clearly seen, not only has the keyboard been memorized, but he has also acquired the ability to operate it accurately.

The permanent contact with the guide keys must be retained until the keyboard is mastered at the slow rate of operation. Obviously, the longer the fingers are actually established in the "home"

position by contact with the guide keys, the more natural will it be to assume this position independently of contact. It may be as well to recall to the reader that the student at this stage is still consolidating the relationship of his body and forearm with the machine.

During the time the student's fingers are in contact with the guide keys he should be instructed to be careful not to depress the keys by this resting touch. The touch should be of a feather weight. The student should be watched in this respect.

At the end of each line of typewriting the student should be instructed to return the carriage immediately, and then to return the engaged hand to the guide keys. Except for occasional rests the fingers should be kept upon the guide keys after the return of the carriage, and the student should then be instructed to examine his work for error. The retention of the fingers on the guide keys will help to combat the desire to look at the keyboard, and the method suggested will pave the way for the later training.

The reader will find that this method is dealt with completely in my *Notes of Lessons on Typewriting*, and in *The Keyboard Mastery Course*.

CHAPTER VIII

DIVISION OF THE KEYBOARD

§1. THE TWO METHODS

THE teacher who studies the various typewriting textbooks at his disposal to-day will have observed that there are two distinct methods of dividing the keyboard for purposes of fingering. The inexperienced teacher is occasionally disturbed by this difference and is prone to wonder which is right and which is wrong. It may be said at once that neither is wrong. Expert operators and teachers with views of their own upon the subject naturally have their own preferences, but only the typewriting "crank" or faddist would suggest that a method of fingering which differs from his own preference is wrong, in the face of the efficient operation which may be obtained with either method. It would be as easy to say that some of the many differences in the fingering arrangement of a classical musical composition as illustrated by our famous pianists were wrong. The fallacy of such an argument is proved by the brilliance of the pianists' production. Similarly with the typewriter, both methods of dividing the keyboard will be found in use amongst our high-speed writers.

On pages 58 and 59 will be found two charts showing the typewriter keyboard divided according to the different methods in practical use to-day. The difference exists principally in the operation of the key for the character "B." In Chart 1 it is operated with the right hand; in Chart 2 it is

operated with the left hand. A careful study of the charts will show the attendant differences in the arrangement of the fingers for the remainder of the keys on the first bank of keys.

Although my own preference is for the arrangement shown in Chart 1, I cannot ascribe this preference to anything but habit. There are certain advantages in either method, and, for the information of the reader, a word about the alternative keyboard divisions may be of value.

The mechanical requirements of the average standard typewriter necessitate that the keys be arranged obliquely instead of one key appearing immediately below another. So far as the eye is concerned it would appear that a natural division of the oblique rows of keys should coincide with this mechanical arrangement of the keys, thus causing the dividing line between the left and the right hands to be made between "5, T,G,B," in the left hand and "6,Y,H,N," in the right hand. There are two facts, however, which render this point immaterial. First, the eye has no concern with the division of the keyboard; and, secondly, the operator is not sitting obliquely before his machine. For instance, the left hand of the operator is not so placed before the keyboard that the oblique line of keys forms a continuance of the line of the first finger. If an argument of this nature were of any consequence it would be far more accurate to say that, since the arms at the keyboard are not situated at a true right-angle to the body, but are pointing more towards one another, the right hand is more or less in the same line as the oblique line of keys from right to left, and the left hand is in the same line as the oblique line of keys from left to right. An

CHART I

LEFT HAND

RIGHT HAND

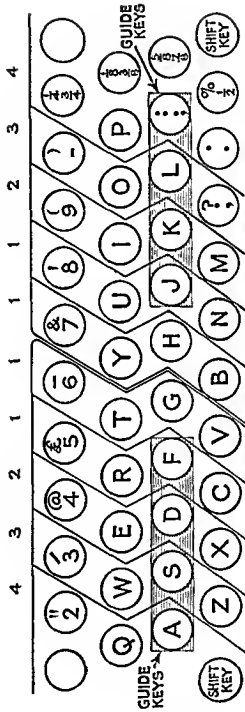
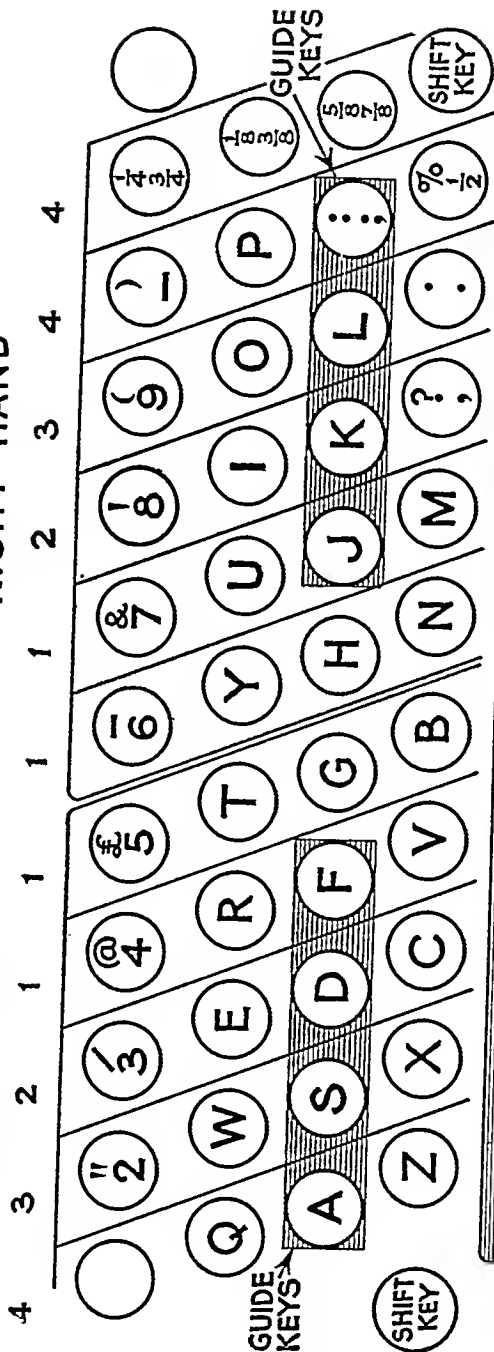


CHART II

LEFT HAND

RIGHT HAND



SPACE BAR - RIGHT HAND THUMB

examination of the hands in position at the keyboard will make this point clear, and will prove the absurdity of any such argument.

The operator's hands are not concerned with the rows of keys as they appear in their neat oblique order in the chart. It is not for this reason that the keyboard is divided as in this chart. The difference is concerned with the question of which finger should be used for the "B" key. It will be observed that the key is below the central point between "G" and "H"—which is to say that the "B" key is equally at the disposal of either the left or the right first finger.

With the method used in Chart 1 the left-hand fingering is so arranged that the use of the fourth finger for the character "Z" is rendered unnecessary; and the fingering of the right hand enables the two punctuation marks to be operated respectively with the third and fourth fingers. Both are distinct advantages. The right hand, moreover, is thus given a more equal amount of work to do in comparison with the left, so far as the lower bank of keys is concerned, and some operators using this arrangement consider keyboard operation is aided by a fairer division of the work of the hands. This division of the work of the hands has been made the subject of an interesting analysis by Professor Hoke, (U.S.A.), in which he proves that by operating "B" with the right hand the work of the hands is considerably equalized.

In my opinion, however, these differences in fingering are so immaterial, so far as either learning or expert operation is concerned, that the question would not be dealt with here except to put at rest the minds of those inexperienced teachers, who, on

observing a textbook with a method of fingering different from that which they have been using, come to the conclusion that they must have been teaching their students a wrong method.

§2. THE LEARNER

It has been shown in the previous chapter that the question of memorization of the keyboard is not affected in any way by this question of the division of the keyboard. The student is required to memorize touch sensations and not to make a mental picture of the chart as a whole. In his operation of the keyboard he never has occasion to conjure up the picture of the chart.

Again, in the learning stages of the student's training, it will be found that some teachers will insist that the student *must* "learn" the keyboard according to the oblique rows of keys; others say the student *must* learn the keys in the horizontal or lateral rows. The advocates of the first method urge that unless the work of each finger is immediately discovered and memorized the student will take a very long time to acquire complete keyboard memory; and similarly other teachers will urge that the oblique rows of keys are immaterial to the memory training. The expert, experienced teacher of Touch Typewriting can afford to ignore discussions of this nature, since in the association of finger with key, and key with key, any method which is based on the linking of the unknown with the known leads to the same end, and has the same effect in regard to the time taken to acquire completeness of association—which is keyboard mastery.

The fact, for instance, that "e, d, and c" or "e, d, and x," as the case may be, are operated with the

same finger is not of the same importance as that of the value of the formation of the habit for securing the right finger movement in order to operate "e" or "d" or "x" in conjunction with any other of these keys, or any of the several keys of the keyboard.

X · (P (6)) G8

Although, as stated, I favour the division of the keyboard illustrated in Chart 1, I have taught students for periods of years in both methods with no difference in the length of time taken to acquire keyboard knowledge or in the development of speed.

There is one word of warning which perhaps it may be as well for me to give. It is that the partly trained operator with a certain degree of skill, or the expert operator, should not waste time seeking to change his fingering. There is no necessity, and, in the case of the expert, an attempt to do so will prove not only exasperating, but possibly, however long the attempt, unsuccessful.

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§3. EXTRA KEYS

Whilst discussing this question of fingering it may be useful to point out to the reader the position of the tabulator key and the back spacer. The student would not, of course, be instructed in the use of these keys at this point. Usually these keys are situated at the extreme top left and top right of the keyboard—conveniently for operation by the fourth fingers. The teacher who attaches importance to economy of motion will train his students to use the fourth fingers for their operation, particularly in the case of the tabulator key. The reason for this advice is solely that the hands at the keyboard should be thrown as little out of normal position as possible during the process of operation.

Discussion often arises, also, as to the operation of the space bar by either or both thumbs. The use of both thumbs—not now very often heard of—is totally unnecessary. It is quite possible to train both thumbs for the operation, but in the learning stages there is considerable confusion of mind during operation, at the end of every word, as to which thumb should be used—and confusion of mind or mental hesitation is one of the hindrances in operation which must be eradicated as quickly as possible in the learning process. The right thumb is the readiest for use by any operator except the left-handed operator, who might with reason be allowed or advised to use his left thumb.

Complete instruction in operation of the figure keys is frequently neglected by the teacher who does not work upon a graded plan of Touch instruction. The operation of the figure keys by touch, and with complete accuracy, is in no way more difficult than the operation of the letter keys. Memorization of key location is as easy with the figure keys as with the letter keys. The fact that the figure keys are arranged in exact numerical order results in their being more rapidly located than the letters. The failure of many students to type figure work accurately by touch is due solely to lack of training and lack of practice. The teacher should not overlook this important detail of instruction and practice. In this connection the teacher should observe the use of the capital "O" for the cipher, where a cipher key is not provided, and the small "L" (not the capital "i") for the figure "one."

A further important detail, frequently omitted in unorganized training, is that of operation of the hyphen key. Because of its frequent employment,

accuracy in operation should be established with this key. The fact that it comes so often at the end of a line, when additional operation in the return of the carriage is also necessary, causes the operator to hesitate or to strike the wrong key, if proper training and practice have not been insisted upon. With so simple and easy a division of the keyboard as illustrated in either of the accompanying charts, there is nothing to prevent the student becoming key perfect with the whole of the keyboard instead of—as is often the case—only with the more frequently used portion of it.

CHAPTER IX

THE ACT OF TOUCH

§I. MACHINE AND FINGERS

ALTHOUGH in the first lesson to a beginner it is essential that some attempt should be made to secure correct finger movement, sufficient at all events to avoid the formation of totally incorrect habits, it is not possible to develop the exact nature of the touch required for key depression until the keyboard has been mastered in the manner suggested in the preceding chapters. The principal reason for this delay is that all the time the student is learning the keyboard his fingers are restricted in their movements, and his mind is hampered by the task of receiving and remembering the various touch and location sensations. There is a big difference in the action of the fingers when the mind and the fingers are free for the development of operative skill. It becomes immediately necessary at this stage to inculcate in the student the true principles of touch, for, since his facility to operate the keys will henceforward develop comparatively rapidly, the teacher must be careful to avoid the possibility of the constant repetition of incorrect habits.

A proper understanding of the action of the type-writer key will assist the teacher very considerably in securing the right action. The standard machine is built with the type-bars arranged upon a simple system of leverage—there is no necessity to use technical terms—of such a nature that, if the key is gently and slowly weighed down with the finger

and held down, the type-bar will slowly rise and slowly press the ribbon on to the paper, and remain there. On the other hand, if the weight is supplied by the force of a blow, and if immediately after the blow the key is allowed to travel by its own momentum, the type-bar will travel to the ribbon and return immediately to its normal resting-place. Further, if experiment is made with different kinds of blows, it will be seen that the swifter the descent of the finger on to the key and the swifter the removal of the finger from the key, the quicker is the action of the type-bar in its journey to the ribbon and its journey back to its resting-place.

Now it may seem to the reader unnecessary to state what may be regarded as elementary facts, or as mere detail concerned solely with the mechanism of the machine. Yet here lies the governing factor of all the principles of the act of touch. I use the term "act of touch" to distinguish from the wider term "Touch Typewriting" (see page 4). If, then, the rapidity of the action of the machine is determined by the rapidity of the finger blows, the problem naturally resolves itself into the acquisition of the best and quickest way of moving the fingers. Immediately the student secures an understanding of the responsive action of the keys, which includes the type-bars, the ground is prepared for this important question. He will see that the object must be, in a sense, less that of depressing the key as of releasing it. In other words, if the teacher will get the student to find out how quickly he can bring his fingers away from the key *after sending it upon its mission*, he will be a long way towards securing the correct action of the finger at the moment of striking the key.

§2. METHOD OF TRAINING

There is a definite object in directing the student's attention to the releasing of the key. The tendency of all learners is to follow the key with the finger ; i.e., to allow the finger to cling to the key during its descent and its ascent. This is, of course, fatal to speed and good type impression. Training in the act of touch must take the form of training the individual fingers in—

1. Independence of action ;
2. Rapid operation of the respective fingers ;
3. Rhythmic movement of the fingers.

The first of these essentials is, for convenience, dealt with in a later chapter, whilst the question of Rhythm is also given separate treatment elsewhere in this book. The immediate necessity is to get the student's fingers working correctly, and so make the transition from the slow "key-finding" movement to the kind of movement which will form the basis of speed development.

In developing the correct touch it is an excellent plan to use the guide keys ; they are, at this stage, already in the sub-conscious mind of the student, and he is free to concentrate upon the chief point of the instruction. It should be pointed out to the inexperienced teacher that in developing the mechanical skill of the student, the work or exercises upon each separate operative detail should be planned so as to avoid the necessity for conscious thought by the student upon any other operative detail. The object in view at the moment is the correct striking of a key. In the initial stages of the training, therefore, it would be foolish to burden the student's mind with long words, or difficult words requiring thought in the spelling, or difficult combinations of keys, or,

as indeed is frequently done, with the care required in the setting out of a business letter. Let the student learn to strike *one* key correctly and half the battle is won.

Consequently some such exercise as that given on page 43 should be used as a preliminary practice for acquiring the correct act of touch, and the training can be developed with the aid of the exercises provided in *The Keyboard Mastery Course*.

It has already been made clear that as soon as the keyboard has been learned so that the fingers are capable of finding the keys accurately, actual contact with the guide keys is dispensed with and the fingers are held immediately over these keys. This is the normal position for touch purposes. The next step is to secure freedom of the muscles. The student should be instructed to "relax" his muscles. There should be no tensing or straining of the muscles anywhere, and particularly in the forearm, wrist and fingers. In the preliminary practice of the exercise the student should be advised to stop immediately he finds he is tensing these muscles. There must be absolute freedom. Instruct the student to concentrate, to be fully conscious of what he is endeavouring to accomplish. Then, taking the first line of the exercise, instruct the student to raise his fourth finger slightly, whilst keeping his hands perfectly level and the other fingers totally disconnected and inactive, and then give the "a" key a sharp tap. Immediately he feels his finger touch the key he must cease to depress, and return the finger to its normal position. And throughout the exercise there must be no perceptible muscular activity; so far as possible the weight of the finger descending upon the key must be made to do the work.

Now the tendency will be for the student to bring his whole hand or the inactive fingers up, simultaneously with the depression of the fourth finger. In other words, he is allowing the muscles to act and react, instead of retaining the relaxed condition. When the student is asked to counteract this, he will possibly bring all his fingers down on the keys. Gradually, however, aided by demonstration and patient explanation, the student will find the right motion, and once this is done facility with the other fingers is a matter of gradual development.

Teachers often ask what is the position or condition of the wrist during the act of keyboard operation. There is no necessity for the question if it is understood that the forearm, wrist and hand, so far as the knuckles, form one straight line, and the muscles of the wrist must not be tensed. Relaxed wrist muscles do not mean a dropped wrist, nor is the wrist ever held high. It takes its natural position in the "straight line" from the knuckles to the elbows, and it naturally retains that position.

§3. ECONOMY OF MOTION

In the learning stage, and even amongst inexperienced typists, there is frequently a large amount of unnecessary motion expended and energy wasted whilst operating the keyboard. The hands may be seen rising from the keyboard with every depression of a key; the forearms may be seen working with the hands; often the whole arm from the shoulder is used; and in extreme cases the trunk of the body. These are all signs of inexperienced operation. There is very little motion necessary for the operation of the keyboard, and in the slow stages it is practically all confined to the fingers. Another fault discernible

in students and inexperienced typists, a fault quite the extreme of that of unnecessary motion, is the tensing of the muscles of the whole of the body. This type of student will be found with his body braced up against the chair, his arms rigid and stiff, his feet gripping the floor, and so on. The expert teacher will be ever on the look-out for evidence of either of these extremes.

It will be observed that the exercises commence with the use of the fourth finger. This is intentional, but not essential. The fourth finger, although perhaps unused to individual work, is very capable of being trained for the not very exhausting task it is called upon to perform in the operation of the keyboard. Because of its lightness, and because the nerves involved in its use are to some extent more sensitive, it is the best finger with which to introduce the nature of the exact touch. The first and second fingers are comparatively heavy, and very easy to train, immediately the idea of independent finger action is secured. The third finger is the most difficult to work independently. But none of the fingers, after a little practice, will be found either impossible, or difficult to manipulate independently. In the course of many years' experience I have met only one student whose hands were so abnormal that touch operation was proved to be an impossibility! On the other hand I have met many scores of students and several teachers who have insisted that the fourth finger "won't work." Fortunately these people have been open to conviction, and, once shown, were able to prove themselves wrong. This question is dealt with further in the chapter on Mental Control.

CHAPTER X

MUSCULAR ACTION

§I. THE TYPEWRITING MUSCLES

THE Touch Typewriting teacher cannot know too much about his subject, and although it is not essential that he should acquire a complete anatomical knowledge of the muscles employed in the operation of the machine, it is essential that he should make himself acquainted with the muscular action involved.

It is elementary knowledge that the arm limb is divided into the upper arm, the forearm, the hand and the fingers, and that the fingers are jointed and so divided into what are called the knuckle phalanx (the first phalanx from the hand), the middle phalanx and the nail phalanx. The thumb is similarly jointed, but the first phalanx commences at the wrist.

Each division of the arm limb is provided with a separate set of muscles, although the muscles working each section of the limb are not necessarily situated in that section, but in some other portion, and attached by tendons. Generally speaking, the hand is moved by muscles situated in the forearm, and the forearm by muscles in the upper arm, and so on. The muscles which operate the fingers are mainly in the hand, wrist and forearm. Further, there are finger muscles which make it possible to move the fingers not only up and down, but from side to side. For the movements of the fingers and hand there are in the forearm muscles whose tendons traverse the wrist and enter the hand at the wrist.

The important point to note is that the separate sets of muscles enable us to move a finger, or the hand, etc., quite independently of other fingers or other portions of the limb, in addition to the fact that several portions may be moved together, as, for instance, the fingers and the hand, or the fingers, hand and forearm.

We are concerned with the muscles of the arm in typewriting because, unless we are aware of their existence and to some extent their location we may find a difficulty in securing that relaxed condition of certain muscles mentioned in the preceding chapter. This does not imply that we need to spend time in attempting to will our muscles into any required state. What is essential for our purpose is that we should know the sensations conveyed when the muscles are called into use.

It will be discovered on experiment that the finger can be depressed, practically speaking, by two different sets of muscles. This is not a strictly accurate way to state the fact, but it will serve. The condition will be obvious if experiment is made by giving a deliberate, forceful depression of, for instance, the first finger. The effort is felt in the hand, in the wrist, and in the forearm. What actually happens is that one set of muscles is directing the impetus, and the other set is counteracting it. There is a kind of recoil. The action of the finger is, as it were, being checked by the hand and arm. If we type for some time with this "checking" of the finger movement by these counteracting muscles, we find our hand and wrist aching and our speed decreasing, until finally we are physically incapable of continuing to type.

The muscles are so constructed that, if both sets

of muscles are used, the fingers, hand and wrist will become set or taut : the fingers move stiffly, and the symptoms mentioned are bound to develop. The aching complained of by students is due to no other cause, and it will vanish immediately the use of the counteracting muscles ceases, and immediately the habit is formed of stopping the descent of the finger after key contact.

§2. MUSCULAR "FEELING"

Let us see how this can best be demonstrated to the student in class. The first necessity is to enable the student to distinguish the muscular feelings. If the student is requested to press a finger firmly down upon the table, the strain in the under part of the wrist will be intensified. Repeating this act a few times will impress this feeling on the student's mind and memory. He should then be asked to operate a key of the typewriter in the same way and with the same effect. The feeling will be immediately observed, though, as the resistance is less than in the case of the table, the strain will probably be less. Now it is that feeling of strain that must be eliminated. Ask the student to press the finger on the table once again, determining this time to do so without that feeling of strain. Then ask him to tap the table as though it were a key. Then let him tap the table alternately with and without the use of the unnecessary muscles. Then again carry the same action to the typewriter.

So far, the experiment has been restricted to one finger. Now let him practise with all the fingers. With the one finger he has been able to analyse the sensations ; with the use of all the fingers he can associate the muscular sensations with each finger

in turn, and practise with the object of eliminating the use of the unnecessary muscles. Let him type a simple exercise on the guide keys, with and without the strain of the "under" muscles. Later on in the student's work, when speed is developed, the teacher should again explain and test this free muscular action.

Complete muscular freedom is the foundation of correct finger action, of speed and of operative skill. The condition and position of the body, the muscular condition of the arms and hands, the capacity to use the "sensitive" muscles of the fingers without the strain of the counteracting muscles, are all of first importance from this point of view. Hence the care which the expert teacher gives to these details at this stage of the student's work. Unfortunately, however, there is frequently a lack of understanding, or a complete misunderstanding as to the real muscular requirements for good operation, and as a result a class of typewriting students is frequently thrown into a totally incorrect muscular condition by such commands as: "Sit upright! Heads erect! Feet firmly on the floor! Wrists well up!" etc.

The instructions and the tone of voice in which they are uttered are such as to compel the students to put their whole muscular organization into such a state of rigidity that the fingers have no chance whatsoever of accomplishing the comparatively delicate task they are called upon to perform. The teacher, through lack of knowledge of this important detail is unwittingly to blame, but believes the fault lies with the students, and the temper and patience are exhausted, the students are made irritable, and the lesson is lost. There would be no harm done in calling the class to such a state of muscular activity

if, immediately that command was obeyed, the command "Now, relax completely!" followed. In fact, the correct state of muscular inactivity would be better secured and more keenly appreciated by the student.

§3. THE CORRECT MUSCULAR CONDITION

If attention is given to these details the student should be found to be sitting with the body at rest in the chair, the arms hanging from the shoulders, completely at ease, the forearms assuming the correct position without being "held" or "gripped" by the tensing of the upper arm muscles, and the hands and fingers hovering limply over the keys. The feet should be "resting" on the floor and not "gripping" the floor, and the student will be sitting well "in" the chair, not on its edge. He should avoid the common fault to be observed in speed work of pressing the body against the back of the chair, thus again inducing muscular rigidity.

The expert teacher will test his class occasionally by looking at the individual students and noting that these conditions are being observed.

CHAPTER XI

ELIMINATION OF USE OF THE EYES

§1. SIGHT OR TOUCH IN LEARNING ?

ONE of the most controversial subjects in the teaching of Typewriting is that concerned with the use of the eyes during the learning stages. There are teachers who insist that in learning the keyboard and the details of manipulation the process is accelerated by the use of the eyes because the student is thus gaining immediate familiarity with the location of the keys and the several manipulative devices. Opposed to this view is the modern and generally accepted opinion that as the sense of touch, and not the sense of sight, is being trained, the use of the eyes at any stage of the work is of no assistance.

Again, controversy exists even amongst the modern expert Touch teachers, as to whether the student should be trained to eliminate the use of his eyes by artificial methods or by natural methods.

Let us examine first the view that the eyes should be used in the learning stages. On the surface there would appear to be every reason to accept the statement that time is saved by allowing the student to look at the machine until he has acquired the ability to operate it accurately. The fact that by seeing a thing we can find the most direct route to reach and touch it accurately is beyond dispute. That this facility is an aid to Touch operation will be immediately denied by the Touch expert, who realizes that in Touch operation it is the brain that has to be trained, and not the eyes. In other words, the

eye-trained typist is compelled to direct his operation by the eyes, whereas the Touch-trained typist's operation is controlled directly by the brain.

Against this argument the plea is made that the eye-trained typist reaches a stage when his eyes are no longer necessary for purposes of operation. The common experience is, however, that he never reaches that stage. He is so trained to rely upon his sense of sight that he cannot dispense with it. What actually happens is that he is obliged to spend much time upon the transition process. He has to a large extent to begin all over again.

In the normal habits of life we are accustomed to use our sense of sight to an extent which puts us at a great disadvantage when temporarily deprived of the opportunity to use that sense. In other words, we do not, as a rule, train the sense of touch to any great extent, although it may be that in certain habits the sense of touch would serve us equally well. We learn such habits by the sense of sight, and there is no real necessity to dispense with it. In Touch Typewriting, we need our sense of sight for other purposes than that of operation of the machine.

But normal habits are the outcome of years of training, and sometimes are even hereditary. The formation of the preliminary habits required for Touch training in the operation of a typewriter is a matter of a few weeks. The quickest method of securing those habits must be adopted. The method which conveys directly to the brain the sensations which form the necessary habits is unquestionably the quickest, and as the "touch" sense is capable of very rapid training, there is no real argument against its employment from the very first lesson.

§2. TRAINING THE WILL

The difficulty does not lie with the student's ability to learn by sense of touch, but with his inability to break a habit of years—that of looking to see what he is doing. The teacher who will attack the problem from this point of view is well upon the road to success. It is natural to look at the machine and the keyboard, and unnatural not to do so. The objective is a complete reversal of this state. It cannot be done without a sympathetic attitude of mind towards the student. The student cannot be "bullied" into refraining from doing something he has been doing all his life. He must first be convinced of its necessity, of its possibility, and of the ease with which expert operation is accomplished when the brain has been trained.

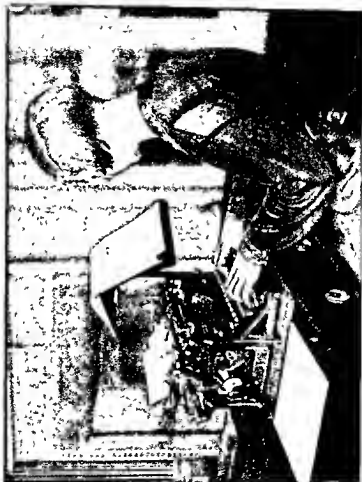
This brings us to the question, should artificial aids be used to prevent the student from looking at the keys? Artificial aids certainly have the effect of removing the opportunity to look at the keys—at all events whilst the student is actually operating—and the majority of teachers who use such aids as the metal keyboard shield or cloth apron are satisfied with this effect. The metal shields may be found in some of our biggest and leading business schools, and it is not to be denied, also, that successful touch operation of the keyboard is frequently obtained by this method.

After stating these facts, however, and without condemning the method, no harm can be done by saying that, in the opinion of many modern experts, artificial aids to the elimination of the use of the eyes are not of real assistance in the teaching of touch operation. They are also regarded as unnecessary. The argument against them is not an extreme one.

It is simply this: since touch operation depends upon the formation of correct habits, the more the *brain* itself is trained to do the right thing, or to avoid doing the wrong thing, the deeper will be the mental impressions necessary for the eventual sub-conscious operation of the machine. If the eyes are not being used, simply because they cannot be used, it is open to question whether the brain is being trained at all. Only the fingers are being trained. It is true that eventually the brain does become trained, but that fact brings us back to the original question—why not train the brain direct from the very beginning?

This is done more easily than may be admitted by the teachers who prefer to use artificial aids, but it is very dependent upon the power of the teacher, whose influence with his students must be exerted, and whose watchfulness and patience will be required in this respect during the early stages of the training. The way to train the student to avoid looking at the keys is, first, to get the student to understand thoroughly the necessity; secondly, to get him permanently interested in his gradually increasing non-sight capabilities, and to treat the work so far as this is concerned as a personal test of prowess rather than a tiresome task; and, thirdly, to keep the student's eyes too occupied to give them much opportunity for watching the machine.

The psychological attitude to adopt is not that of "*Don't* look at the keyboard" but "*Do* look at this or that or the other." It may be left to the teacher's ingenuity to devise means of occupying the student's eyes during the period when there is not very much in the way of "copy" to follow with the eyes. There should, of course, always be some "copy," however



COPYHOLDER AND KEYBOARD

Note that the copy is so placed that it is given prominence over the keyboard

brief the exercise. But the teacher should not be averse to directing the student's eyes upon himself, or to a blackboard on which an exercise may be written, or to some point in the room upon which the student can be asked to keep his eyes focused. Occasionally he may be asked to close his eyes, but this is not always to be too strongly recommended, for one or two good reasons.

§3. NORMAL CONDITIONS

Finally, there is an obvious bias towards preserving at all times throughout the training absolutely normal conditions of work at the machine. The metal shield or the cloth apron are not used—with one or two rare exceptions—in the business office, and their use in the classroom is frequently the cause of the office typist's confession: "Yes, I learned touch methods at school, but when I got into the office I found I had to use my eyes." The modern teacher, having always in mind the future class work of the student, and the ultimate office position, will endeavour to provide from the very first lesson conditions of operation such as will never require to be changed. From this point of view the provision of a copyholder will go far towards keeping the student's *mind* away from the desire to look at the machine. The weakness of the shield lies in its own shortcomings. It does not obliterate the keyboard, for students have been observed to lift the shield or apron to *see*, as they will explain, whether their hands are in the correct position or on the right row of keys! And further, the shield hides only the keyboard. It does not prevent the serious fault of watching the type-bars at work, the carriage movement, the act of

returning the carriage, and the checking letter by letter of the word or exercise.

Teachers who definitely hold that the use of keyboard shields simplifies their work in the classroom should on no account allow the students to keep the keyboard covered throughout the *whole* of the lesson or practice period. A ten-minute practice upon a definite exercise, with the covered keyboard, at each lesson, followed by practice at the same exercise without the shield is the correct method for this form of training.

It should perhaps be stated, however, that the above observations are made chiefly in order to outline the two distinct methods of training in this part of the work. My preference for normal treatment is the outcome only of long teaching experience of both methods.

On the question of blank key caps instead of lettered key caps little need be said. It should be perfectly obvious to the instructor that the blanking of the key caps does not prevent students from watching the keyboard whilst typing, and that the positions of the keys and of the fingers are in no sense obscured by this method.

CHAPTER XII

RHYTHM

§1. ITS INTERPRETATION

THE importance of rhythm in the development of the student's training at the keyboard and in the development of speed has become so obvious within the past few years that experts are prone to wonder how the typists of the past reached a stage of high speed and accuracy without it. The truth is that they were never without it; they were merely unaware of it; their success was the outcome of the unconscious development of rhythmical operation. Rhythm in expert typewriting has simply discovered itself, and the only difference to-day is that the teacher, aware of its value, is able to utilize the principles of rhythm in the early training and to inculcate it in the minds of the students so that it is used throughout the whole of the training. The Touch Typewriting student is persuaded always to operate the keys with a rhythmic action of the fingers, and so make rhythm one of the many habits which he must adopt before he can become a skilled Touch operator.

The interpretation of the word rhythm in relation to typewriting is simply a modification of the rhythm essential to music. In music rhythm stands to some extent for the measurement of time. The foundation of rhythm in music is the "beat."

§2. METHOD OF TRAINING

The training in the steady beat-by-beat rhythm of the learner should commence immediately the

teacher is satisfied with the student's touch and finger action. It is important that this point should be properly understood, for since rhythm is usually developed in the form of "drills," involving the repetition of the same finger movements, no risk should be taken of repeating over and over again incorrect movements. The exercise on the Guide Keys in the first lesson, for instance, provided that the student has developed a sufficiently correct finger action, should be typed rhythmically, even though the pace is very slow.

It may be useful to explain here that a slow rate of speed, or slow pace, must not be understood to mean slowness in the actual depression of a key. The keys, or any one key, should never be depressed with any but the correct, sharp, "Touch-and-let-go" action of the finger. There should be, however, in the early stages, always plenty of time *between* the key depressions—time for thought as to location of the succeeding key, time for concentration upon the letter-name and the exact nature of the act, time for adjustment of a possibly altered position of the hand, or of an incorrect muscular condition.

Therefore, assuming that the letters of the guide keys are to be typed as an exercise, the teacher will direct the depression of the keys by counting at a very slow rhythmic pace—

a—pause—s—pause—d—pause—f—pause—
;—pause—l—pause—k—pause—j—pause, etc.

The key depression will be *instantaneous*, the pause may be of the duration of at least a second; the typing of the whole line will be continuous and at a rhythmic beat.

The advantages gained from developing a rhythmic touch may be enumerated as follows—

1. It aids concentration.
2. It assists correctness of finger movement.
3. It induces accuracy.
4. It secures evenness of type impression upon the paper.
5. It forms the basis for the development of speed.

Sufficiently important is any one of these advantages to warrant its careful attention by the teacher. Collectively they prove rhythm to be of the utmost importance in the training of the Touch typist.

To the experienced teacher it will also be very apparent that rhythm provides the sole means of consolidating, graduating and developing the operative progress of the student. Apart from its utility in operation the employment of rhythm provides the teacher with a scheme of instruction which prevents any possibility of haphazard, faulty and unchecked progress.

The simple fact that the student's operative ability in the various exercises and at the various stages is measurable in a definite manner provides both teacher and student with a standard to which to work. This fact will be clear to the untrained teacher when it is stated that accuracy and speed are two separate factors in the development of operation, to the extent that the student may be capable of typewriting an exercise say at the rate of two strokes a second with perfect accuracy, but immediately he attempts the exercise at a higher rate of speed inaccuracies occur. This point is dealt with more fully in a later chapter.

§3. WORKING WITH THE STUDENT

Rhythm as a form of measurement of speed and progress, however, is only a teacher's aid. Its

importance lies in its inherent value to the student's operation, and the Touch Typewriting teacher must not only have a complete understanding of its functions, but he must also know how to induce the rhythmic sense in his student. There will be found in almost every class one student, or more, who is quite insensible at first to rhythm or to "beat." But with a machine such as the typewriter he cannot fail to develop it in the course of practice. The only way for the teacher to induce it is to work always with the student until the rhythmic feeling in his operation is developed, counting always the beat, or calling the separate letters at the beat. The unrhythmical student will eventually find himself working naturally with the remainder of his class, and day by day the rhythm habit is adopted, until, as with experts, it becomes impossible to type in any other way.

That rhythm is an aid to concentration may not at first be obvious to the inexperienced teacher, or to the teacher who is placed at the grave disadvantage of being unable to operate a typewriter by touch, or at all. (And there are such teachers!) In the earliest stages, where the pace is necessarily so slow as to be almost unmeasurable, the student is thinking with all possible effort between the separate key depressions of an exercise. He should be directed to think always of what he is actually doing up to the point of hearing the contact of the type-bar upon the paper, and immediately that moment arrives to turn his thought to the next letter and the action it involves, and so on. When the pace is increased, his periods of thinking are shortened, until eventually he must think in a great hurry. With the measured time of the key depression his brain

becomes accustomed to rhythmic action, and his thinking is not only orderly, but it is fully conscious and prompt.

The expert may not need to be reminded that eventually this thinking process is eliminated altogether, and the mind automatically controls the fingers, not only as to their immediate keys, but as to rhythm. In the learning stages, however, the thinking, or concentration, is essential, and the more the individual actions and sensations are concentrated upon, the more rapidly will the student reach that automatic stage when speed and accuracy are natural habits.

§4. THE MECHANICAL ASPECT

The advantage of rhythm as an aid to correct finger-movement in typewriting bears a very close relation to the value of rhythm in all mechanical performances. So common a scene as a group of three or four road navvies who may be observed all engaged together in driving one iron wedge into the roadway with a rhythmic, orderly swing of their heavy hammers, illustrates the same principle. How often, when watching such a performance, do we not tremble to think what would happen if only one of the group got out of beat !

In this instance, as in the more delicate task of operating a typewriter keyboard, rhythm enables the operator to give a succession of accurately-timed, deliberately-planned blows, the sense of regular time lessening the possibility of any blow being made out of turn, or before the completion of its predecessor. The illustration of the hammers is not inapt ; there is a great similarity in the work of

the type-bars, all striking the same point on the carriage and operated by separate agents.

This feeling of deliberate, rhythmic action is an important factor in finger-movement. It helps to train the mind to receive and retain exact sensations for key location and key depression, and when these impressions are definitely formed it enables the mind to direct the fingers with decision and accuracy.

The importance of rhythm in regard to accuracy and speed is dealt with in a later chapter, but there are two outstanding features in this connection. First, as to accuracy, it is an accepted fact that a mind working rhythmically under stress of speed has naturally a greater opportunity for accurate work. Secondly, as to speed, even in the action of the type-bar, if this action be briefly studied, it will be observed that the rhythmic rise and fall of the type-bars precludes the possibility of "type-bar clashing"—one of the greatest failings of unrhythmic operation.

The perfect evenness of the type impressions upon the paper is the natural outcome of rhythmic operation. The ribbon and carriage, both operating as a result of key depression, are usually set in motion at a certain definite point. Jerky key depression causes the type-bars to arrive at the striking point at different moments of the movement of the ribbon and carriage, and uneven inking and uneven spacing are the result.

In view of these facts the expert teacher may be forgiven for wondering at the expression occasionally heard; "Rhythm in typewriting is all nonsense!"

CHAPTER XIII

THE USE OF THE GRAMOPHONE

§I. A MECHANICAL AID

IN the previous chapter reference has been made to the necessity for rhythm in the acquisition of touch habits, and to the value of rhythm in regard to the control of rate of speed, to concentration, and to the establishment of the necessary sub-conscious habits.

Rhythm, in its typewriting interpretation of the measured regular beat, must be induced by the teacher, in the absence of mechanical means, beating time with the hand or with the baton, or by tapping the table or desk with a baton, or by calling or counting aloud. The fact that these methods are used, more or less successfully, in some schools, can be accepted only as evidence that the control and measurement of key depression is effective. The teacher may, however, be relieved of this necessity to employ time and energy by using a metronome or other mechanical method for securing the beat. If sound is deemed essential for securing the beat, as in the case of the baton, or if a mechanical method is preferred in order to release the teacher for the more important details of class observation, then we have a definite claim for the gramophone. And, as the student is usually immediately submissive mentally to the rhythm of music—particularly in that form in which the rhythm is well defined, the gramophone can be justifiably considered as a reasonable mechanical means of inducing rhythm.

The gramophone method of keyboard training has undergone a lengthy period of experiment from which certain conclusions have now been reached. These conclusions have been summed up as follows—

1. That the gramophone is a distinct aid in the keyboard learning stage.

2. That the use of dance or other normal music records, however useful they may or may not be in the advanced stages of practice, are a direct hindrance in the keyboard learning stage.

3. That records specially constructed for keyboard learners, and used in conjunction with specially compiled keyboard exercises, form an unparalleled means of acquiring the right kind of keyboard knowledge and keyboard operation skill.

4. That for students who have graduated from the keyboard learning stage, the value of the gramophone, except as a corrective, is extremely doubtful.

It should be borne in mind that typewriter keyboard operation demands the acquisition of a certain technique, without which the typist can be only an indifferent operator and never an expert operator. The absurd idea that if a student goes on typing for a sufficient number of years the keyboard operation will in time become accurate of its own accord is gradually dying out. In point of fact, for however many years the wrongly trained operator types, the same incorrect habits will only be more strongly developed, and expertness will never be acquired.

In any modern scheme of keyboard training there must be a complete recognition of the importance of the "timing of movements" in the keyboard learning process. It is only in recent years that this has been

given the emphasis it deserves. It is imperative that the student should be trained to depress the keys with an absolute regularity of beat at a restricted rate of speed, whilst undergoing the process of learning the keyboard. Few instructors to-day are able to ignore the fact that the keyboard can never be mastered if the finger movements themselves are not made the basis of correct key finding, and if the question of timing the strokes is neglected. It is as a timing instrument that the gramophone is primarily a distinct aid to beginners in the keyboard learning stage; but the timing induced by the records must be dictated by the requirements of keyboard operation. There are a few instructors who reverse—or attempt to reverse—this principle, and who endeavour to adapt the requirements of keyboard operation to whatever music may be conveniently at hand. For these teachers it is impossible not to feel sorry, despite the fact that occasionally methods of this kind meet with some degree of success. It will be apparent to all keyboard operators who have also a knowledge of music, that the average musical composition, whether it be dance music or classical music, in its original form, is harmful to the task the keyboard learner is facing, and in no sense helpful. Dance music or any other music is unlikely to have been composed with any thought for the typewriter or the typewriting student, and it cannot pretend, in any case, to meet the restricted requirements of the typewriter keyboard. The syncopation of jazz, whether simple or complicated, the accented music of a march tune, or the varying cadences of light music or of classical compositions, do not provide the right kind of guidance for the keyboard learner. Keyboard training, to be effective, must be intensive.

Students must be given every opportunity to concentrate. The timing of strokes must be secured in a deliberate form and not in an accidental form. The regular beat required from the learner should be clearly presented: the student should not be asked to search for it amongst sounds manufactured for other purposes.

A complete understanding of the problems involved in keyboard learning would prevent teachers from inflicting makeshift methods of this kind upon their students. Properly prepared records only, and not carefully selected musical records, can meet the needs of the typewriting student if problems such as the following are to be solved.

Development of the sense of key location.

Development of instinctive finger movement.

Development of power of concentration on copy.

This training is made possible only by giving consideration to the timing of the individual strokes. If during the learning process each finger movement and key depression are not timed—that is, if the movements are irregular—the mind is prevented from working in an orderly manner. This is the claim for absolute regularity of key depression during the learning stage. And if there is not a proper interval of time between each key depression during the learning stage the mind is not given sufficient time to reflect on the sight of the copy, to direct the fingers, and, of equal importance, to absorb the whole process into the subconsciousness.

I think it may reasonably be pointed out that the absolute mechanical precision of finger movements

induced by properly constructed exercises, and timed by properly constructed musical records, can be ensured by following the detailed course it was my privilege to prepare for Sir Isaac Pitman & Sons, Ltd., a few years ago. This method is far removed from the old-fashioned chart and ordinary keyboard memorizing method, and I am glad to be able to say that there are scores of schools and classes in existence to-day where the instructors would not care to be requested to train students in keyboard operation by any other method than that laid down in the *Keyboard Mastery Course*.

There are two quite incidental advantages of the music-aided method, in that the music provides a very natural source of interest in the study process to the average young student, and that the music goes a long way towards reducing the nervous effect of the noise of the clicking of many machines in a comparatively small space.

§2. ITS RIGHT PLACE

There is, however, a right time and place for the use of music. It has a definite purpose to serve in the study, but immediately its use is carried outside that purpose, it can hinder rather than help the practical nature of the training. In the very first stages of the use of the fingers, music should not be used with the beginner until he has become familiar with the position and depression of the guide keys. This is but one instance of the necessity for an understanding of the gramophone method.

Secondly, music in conjunction with drills should never be used whilst the student is acquiring the correct nature of finger touch. That is to say, each

habit, after its demonstration and instruction, should be practised and correctly acquired before music-aided drill is used. This is in order to prevent any possibility of the repetition of incorrect habits. The temptation with music is for the student to concentrate upon keeping to time with the gramophone rather than upon the nature of the habit he is seeking to establish, thus defeating the object of the drill by failing to make the correct, or any, mental impressions. I have even observed on more than one occasion, in classrooms under my own direction, a student typewriting with complete indifference as to which keys he was operating, whilst he was quite content not to be disturbing the sound of the regular strokes of his fellow-students.

With this restriction, however, music in all drills is not an outrageous substitute for the methods more generally in use.

The length of time in each class period during which music is used should be strictly limited. One can turn to instances where the gramophone is used throughout the whole typewriting lesson, and for practically every lesson, with the result that not only may many bad typewriting habits be formed, but the student learns to become dependent upon the music so far as rhythm is concerned, and is more or less incapable of correct touch without it. He is often, in fact, thrown back upon the habits of "sight" typewriting.

Ten minutes during each lesson, or at the most two separate ten-minute periods during each hour's instruction, is to be regarded as quite sufficient for the purpose in view. And in these ten-minute periods the necessary point of the instruction can be sufficiently established to enable the student to continue

the practice or drill without the mechanical suggestion of rhythm.

§3. ITS USE IN SPEED

There is a further limitation which must be placed upon this use of music, and that is in the development of speed, although, here again, there is some difference of opinion amongst those who are in favour of the music-aided method. When the subject of speed is discussed later in this book it will be seen that an absolutely even rate of speed, stroke by stroke, ceases to exist in high speed. There are difficulties in the nature of the combinations of letters, in the operation of certain words, and in the degree of familiarity, which result in an occasional decrease in the rate of stroke—although, as explained in due course, this does not mean that the operator abandons evenness of stroke. It does mean, however, that after a certain rate of speed the emphasis of the beat at a definite rate by the gramophone or any other means would be only a handicap to the operator and not an aid.

The gramophone should be used for the establishment of evenness of touch in exercises and copy matter up to a speed of fifty words a minute, and not beyond. As I have already stated, the student should not be trained to depend upon the gramophone or any other artificial inducement for securing "rhythm." It should be used in a solely suggestive capacity. Whilst dealing with this question it may interest the reader to be reminded of an amusing "write-up" of "Type-writing to Music" by a journalist in the daily press some time ago when, as the result of perhaps an excusable amount of exaggeration, the idea might well have been conveyed

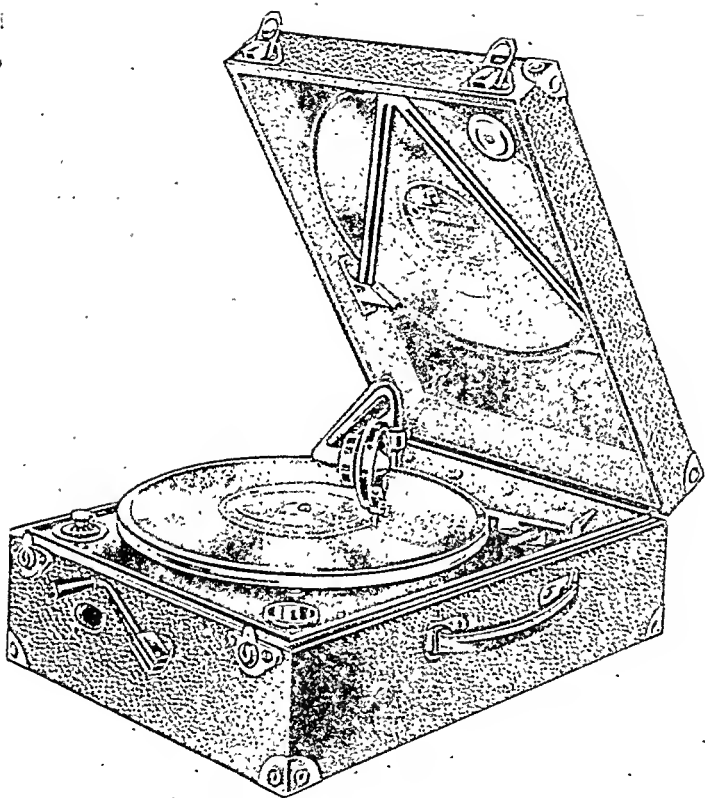
to the uninformed that the use of the gramophone in the typewriting classroom and the office (!) was a natural and pleasurable thing.

§4. HOW TO USE THE GRAMOPHONE

The first necessity for care in the employment of the gramophone method is the choice of music records. Generally speaking, the simpler the form of music the less risk there is of using a record which will fail to help the student. For that reason, only records especially prepared for typewriter keyboard learning purposes should be used.¹ It will be understood at once that music of a high standard, such as we are in the habit of describing as "classical," is rarely likely to be capable of adaptation, if only because of the considerable variation usually to be found in the tempo of such compositions. The teacher, realizing that the effect desired is that of a definite and measured beat, will therefore endeavour to find records in which the beat is marked clearly, as, for instance, the three clear beats to the bar of waltz time, the two distinct beats of the two-step, or the four beats of the march. The type of record to avoid is one in which the first beat of each bar is over-emphasized, or in which there is syncopated time, or *accelerando* or *rallentando* passages. Records with a strong musical appeal should on no account be used.

The average student soon becomes accustomed to detecting the beat (or its typewriting equivalent, the rate of stroke) in the music, especially when the exercises used are compiled for use with properly arranged music. When first introducing the gramophone method, the teacher should make certain that

¹ *Palman's Gramophone Method of Typewriter Keyboard Instruction* contains specially prepared records



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the student is capable of "listening" and securing the beat.

Although the method of using the gramophone is very simple indeed, it may be useful to the inexperienced teacher to give a description of its application to a drill upon a simple exercise. Let us suppose that the student has been instructed and practised in one of the exercises on page 53, and that the teacher is ready to present this exercise as a music-aided drill. The gramophone, mounted on a stand or table, should be in readiness with the record adjusted and the spring wound. The teacher will first demonstrate its use, if it is the first occasion of the student's practice. A student, acquainted with the gramophone, will be asked to manipulate it for the teacher, who will be seated at his demonstrating machine. The learner will be directed to keep his eyes upon the copy, and, whilst not operating himself, to listen to the music and to the sound of the stroke of the typewriter. A slow record may be chosen for the drill, and the teacher may type at the rate of two strokes to the second. For the very first lesson, by the way, one stroke to the second is quite fast enough.

After the teacher has demonstrated in this way, the student will be asked to begin. The teacher should allow the gramophone to play a few bars of the record first, so that the time is again impressed upon the student; and then, at a pre-arranged signal from the teacher, and without stopping the gramophone, the student will commence the exercise, with the teacher at first calling aloud the letters of the exercise in order to aid any nervous student who may not have succeeded in starting correctly, or who may have lost his place.

I am purposely describing in detail what is actually a very simple matter so that the inexperienced teacher may follow the method carefully. The student will, during the first gramophone practice, type to the end of the first line of the exercise and immediately return the carriage. The teacher can allow three, four or five beats at first for this operation, but, as explained in a later chapter, when the right time comes he will devote special practice to it. The important thing is never in any practice to end a line without the return of the carriage.

When the first line is completed the teacher should stop the gramophone, instruct the student to examine his work, and rapidly examine it himself. The drill should then be repeated. Immediately the teacher is satisfied with the result he will arrange for two lines to be typed without a break, and then three lines. But he should not, during the early stages, be in any hurry to develop "continuity" in this way.

The teacher will realize that the operation of the space bar, so far as beat is concerned, is treated as though it were a character key. This is a very important point also in regard to "rhythm." The student untrained in the operation of the space bar is very susceptible to error—chiefly because he allows it to interfere with the timing of his strokes.

When a drill is perfected, the teacher may use it at a future lesson to increase the rate of operation with the aid of the gramophone. It is not necessary here to show how the student may type at various speeds to any suitable record, since the striking of the keys is nothing more, in this respect, than the habit most people have of tapping in time with any music heard. That is to say, we may tap beat by

beat with the music, or twice to every beat, or once to every two beats, and so on. The teacher will be well advised, however, to use only specially prepared typewriting records, which not only coincide with the conditions I have described above, but also control very definitely the student's rate of stroke in accordance with special exercises, and, more important still, are correctly arranged for the ending of lines and returning the carriage.

When the student's operative ability reaches the stage of complete keyboard knowledge, the use of the gramophone becomes still more simple and straightforward, and in the case of students who have been trained in the early stages with the use of the gramophone and who have reached the advanced and speed development stages, an occasional return should be made regularly to the music-aided rhythmic drills in order to correct any tendency towards uneven key depression.

CHAPTER XIV

MENTAL CONTROL

§1. THE CONSCIOUS AND SUB-CONSCIOUS MIND

TOUCH typewriting naturally implies much more than the training of the fingers to operate the machine. It may be said that the work of the fingers is of the least importance. Without proper mental training, Touch typewriting would be an impossibility.

The real difference between the Touch method and the Sight method is that in the one the work is done with the mind ; in the other the work is done with the eyes. In Touch typewriting the various typewriting habits are rendered capable of sub-conscious performance : in Sight typewriting there must be always a complete consciousness of performance. This infers the necessity for such a training of the conscious mind that, like most of the ordinary habits of life, the essential typewriting habits can be passed to the sub-conscious mind, which, in effect, does control expert operation.

This mental condition may be briefly illustrated by assuming that we are about to type a page of ordinary matter. Our mind and fingers are trained to an extent which renders the eyes unnecessary for the details of mechanical operation. Our eyes are fixed upon the copy. We proceed to type. What is our brain doing ? First of all it is reading—and the eyes *are* necessary for that purpose. It is their sole duty. Secondly, the brain is deciding that it is reading intelligently, although it is quite possible

to type without this critical faculty at work ; in short, it is possible to type "blindly" or with absolute unconsciousness of the matter being typed, as is sometimes the case with the shorthand writer.

Thirdly, the brain is controlling, generally subconsciously, the many physical movements essential for the production of an accurate copy. Completely conscious control may occasionally be found necessary. For instance, a strange word may appear in the copy, or a foreign word, or a doubtful spelling, or an unusually difficult combination of letters.

Fourthly, the brain is arranging and controlling the arrangement of the work upon the typewritten page : it is receiving indications as to end of line, division of words, paragraphing, end of page, etc., and is controlling—again either consciously or subconsciously according to the normality of the material—the physical actions essential to carry out the demands made on the brain by the "copy."

Unless the mind is capable of perfect mental control in regard to every small detail of operation, expert operation is impossible. The result would be, and often is, slow work with constant interruptions and inaccuracies. The typewriting brain cannot function correctly and continuously if it has not been completely trained in every detail.

§2. COMPLETE CONTROL

This example, however, does no more than give an illustration of general mental control by the trained mind of the expert. The teacher is compelled to go more deeply into the individual processes of mental control, in order that he may ensure successful training for his students. Obviously, the mind of the learner passes through different stages

in the course of his training. There are several details for the brain to control, and complete control must be built up, piece by piece, the one upon the other, each piece gradually becoming more complete and perfect as practice progresses, and occasionally the one piece being dependent upon the perfection of the other.

It should be thoroughly understood by the teacher that the student of Touch typewriting is doing something more than striving to secure agility of fingers at the keyboard. He is training his mind to transpose the matter to be copied into the several automatic or mechanical physical acts which he knows, by experience, will result in their correct appearance in typewritten form. For convenience, we may say that he is actually creating what we have called a mechanical typewriting brain.

This typewriting brain, at the commencement of the learner's practice, is completely unformed. The learner must begin at the beginning and pass through the various mental stages, just as the child mind is compelled to develop in the normal things of life or in the simple studies he is given. The typewriting student, however, has something on which to build this new brain. He can spell and read. He has been accustomed to copy with a pen; he is able to form immediate conclusions from experiment; and he has other experiences in connection with writing and copying with which to compare his new experiences.

The first stage of mental control which the student reaches is concerned with single letters of the alphabet and their association with their individual keys. In typewriting the letter "t" for instance, the sight of the letter sets in motion a brief series of

communications. The brain receives through the eye the message that "t" is to be typed. The brain must first be capable of selecting the correct finger; in this case the first finger of the left hand. The impulse once created, the first finger "feels" the message, and is ready for action.

But the first finger has several duties to perform, and the brain must further indicate the precise movement. Training teaches the exact direction and distance, or "reach" as it is called, necessary to find the letter key, and this message is detailed by the brain. Then the brain must impel the correct action of the finger, the lift, the strike, and the return to the normal position. There is then a "clearance" of the whole impulse and the brain is working upon the next.

In the beginning stage of the practice, therefore, the student must be taught first to allow each letter of the alphabet to become associated with a certain finger. As has been shown, the actual first lesson restricts this to the guide keys, and, in order to avoid incorrect habits of finger action, the student is taught, side by side with this phase of the work, how to manipulate the guide keys.

Secondly, immediately the association is made, he must develop a definite mental feeling as to key touch and reach. That is to say, he must know where to place his finger.

Thirdly, he must be able to will his finger to work independently of the others immediately the impulse is received.

Fourthly, having obeyed these directions of the brain, he must be able to return his finger to the normal position and free his mind from the whole series of actions.

In the learning stage he is placing into his mind the exact sensations of the several actions. In practice, the mind, knowing well what has to be done, directs the actions. According to the degree of intensity with which each individual action is conveyed to the mind, so will the mind be capable of controlling that action when it is only one of many and when it has to be accomplished in a fraction of time. And, further, according to the development of the power to obey the control of the conscious mind during the learning stages, so will the sub-conscious mind be developed to control automatically, when the impulses are received.

Briefly, the mind associates certain impulses with certain acts by means of experiment and repetition, and the result is a mentally controlled ability to operate the machine by what is called for convenience Touch Typewriting.

§3. STAGES OF PROGRESS

As already stated, the learner first sees only individual letters. Each letter in a word is a separate unit at this stage of his knowledge, requiring a separate control and involving a separate group of actions. That is the state of the learner's mind during the whole of the first stages of keyboard learning and during the period whilst his mind is absorbing the letter associations.

The student cannot progress until these letter associations are made. The mind cannot direct until it knows. The importance of finger exercises, or keyboard exercises, needs no further evidence than this. Yet the undue haste on the part of students, and sometimes teachers, to pass on to sentences and even to business correspondence, may

still be observed in many schools, and the teacher wonders why his result sheets show so large a percentage of errors.

The mind cannot give out more than has been put into it, and if by means of finger exercises the brain and fingers are trained to make correct letter associations, the next step becomes easy and the application of mechanical skill to a business letter, for example, becomes a simple matter of instruction in detail of arrangement instead of a division of the mind between style and untrained operation.

Immediately the student becomes practised in letter associations and can respond to the individual promptings of the mind, he begins to see combinations of letters instead of individual letters. Some of the letter associations have now become so familiar that the necessity for conscious thought is beginning to disappear in regard to these. The finger exercises have made them so; the frequent repetition of similar associated actions has made their accomplishment more or less automatic. A word of warning may be useful at this point. The student, very satisfied to find occasionally that a combination of two or three letters comes very easily and rapidly to his finger tips, will want to "speed up" on key depression. The value of rhythmic training will be seen here as a deterrent to this natural desire.

When the student ceases to see individual letters his mind is showing evidence of having absorbed the correct letter associations, and eventually the mind is set in motion by the sight of the complete word. The selective faculty of the mind is at work, controlling the action of the fingers in the correct and continuous order of the letters, without conscious spelling or individual letter effort.

The next stage is that the student sees two or three words, or, in easy matter, a whole phrase, and his mind is occupied with some such a group at the same time. Normally, however, the student does not read far in advance of his copy, except in simple combinations of words. As a rule the expert typist concentrates upon a group of from ten to twenty letters or "strokes," and these may comprise one or two long words or several short words. He is dimly conscious of the words that follow this immediate group, but he concentrates intensely for the moment upon the immediate group. This does not mean that he is thinking how to operate. He is not. He is simply excluding from his mind everything else, and allowing his "typewriting brain" to assume control.

It should be added that it is quite possible for the expert to type without this concentration. He may think or even talk of other subjects whilst he is typing from a piece of "copy." His skill can be developed to a point where he may be typing in one language and, if he has the knowledge, talking in another, or working out an arithmetical problem.

This is purely automatic typewriting, and the typewriting brain under such conditions is susceptible to all forms of curious errors which need not be discussed here. The expert typist whose aim may be to operate at his highest speed, or to produce a day's business correspondence, must ever have that particular consciousness which involves concentration upon his copy.

In the course of the act of copying, the mind may be thrown back now and again upon actual conscious operation. A difficult or unusual combination of

letters will require this, or a doubt as to how to end a line when the warning bell is heard. The ability to recognize these difficulties when they approach to slow down operation until they are passed, and so avoid error or interruption of continuity, is one of the marks of the expert.

§4. ADDITIONAL CONTROL

Mental control is essential in the general manipulation of the machine in addition to operation of the keyboard. The mind must be trained to react to the impulses made by the demand for the capital letter, the spacing of punctuation marks, for the change of line, and for paragraphing. The untrained mind betrays itself in the student who, at the end of every line, ceases to type and stops to think, and who makes the return of the carriage a slow and conscious movement, and who takes the equivalent of one line, in time, to indent for a paragraph.

Even though, in the practice room, the need for haste may never exist, if the student is not trained to place these movements just as perfectly in the mind as the operation of the keyboard, and so subject to mental control, he will never be accurate or speedy. The typist must make it his aim to reserve his consciousness, as far as possible, for his copy, and, in any case, to be completely independent, mentally, of mechanical operation.

To sum up, Mental Control is obviously a matter of gradual development, side by side with the actual details of operation. It means simply the securing in the mind of the correct associations between necessity, action, and effect, so that eventually the sub-conscious mind controls these details, instead

of the student being compelled to direct them by conscious thought.

Whilst it will be admitted that the mental processes involved in the acquisition of Touch operation form a very interesting as well as an indispensable part of the teacher's knowledge, it does not follow that he need burden the student with an analysis of the particular functions of the mind in the act of type-writing beyond enlightening him as to the reasons for certain forms of practice. The teacher *is* urged to remember, however, that a knowledge of these mental processes is the key to successful training, by which is also meant rapid training, and it is difficult to conceive how the subject can be taught without this knowledge.

CHAPTER XV

THE USE OF TYPEWRITING DRILLS

§I. REASON FOR USE

THE successful typewriting teacher is he who knows how to make effective use of drills in his classwork. Fortunately, typewriting drills lend themselves very happily to concerted class work, and it is surprising how much the teacher is able to accomplish by these means. Every typewriting lesson should have its appropriate drill, and, if the teacher is not provided with definite drills for the various stages of the work, he should use his own knowledge and ingenuity for devising suitable material.

Typewriting drill means simply the exercising of the student under the teacher's immediate control by repetition of carefully prepared matter, designed for the production of a single definite result. With the aid of the principle of Rhythm, and with an agreement with the student that he shall act under direction, in no different manner from that which he adopts at the direction of his physical drill instructor, the teacher is able to develop that concentration of mind and precision of action, which, *once a correct typewriting habit has been understood and acquired* secures the retention by the brain of the exact sensations involved in the individual operation.

Each drill, therefore, has a definite object, and the teacher should not fall to the not uncommon temptation of engaging his class in indiscriminate drills for the mere sake of drills and in order to

occupy the students' time. Like most good things, typewriting drills can be overdone or even abused.

§2. THE RIGHT PLACE

The first essential in regard to drill is that it should always follow, and never precede, the introduction and acquisition of the typewriting habit it is desired to establish. I have frequently seen the process reversed, and the drill used in order to acquire the correct habit. The folly of this needs no further emphasis, since throughout this book I have urged the importance of preventing the student from repeating incorrect typewriting habits.

Secondly, the drill should occupy only a small proportion of the class hour; and the natural place for it, in the early stages of the training, is at the end, when the student has revived his existing operative powers and has, perhaps, acquired the new work of the lesson.

Drills are sometimes used at the beginning of a lesson, with the creditable object of "freshening up the students' minds." It is doubtful if the effect of the drills is exactly that: the desired result would be more easily obtained by engaging the students for a few minutes in actual physical exercises. In the advanced stages, unquestionably, the prefacing of a lesson with such drills as the rhythmic drill, the alphabetic drill, and a few repetition sentences, has its definite value, with the additional advantage that it can do no harm. But the typist's mind in the state of being trained is a somewhat different matter, and the teacher will be wise to use drills sparingly and watchfully and place them always at the latter part of the lesson.

Drills can be used from the very first lesson, with

action on the guide keys alone. The object of the drill is mainly to secure the mental association between the letter and the key. The bridge between is the correct action of the finger, and this again must be made to linger in the memory. Therefore the drill comprises frequent repetition of the same act, the act being previously judged to be correct. A suggested rhythmic drill is given on page 114.

It will be observed that many drills are balanced between the left and right hands—a necessity in the early stages and a natural aid to the associative memory. Care must be taken to see that the student keeps both hands in position, although only one hand is occupied alternately. It should be remembered that drills not only establish correct habits; they also accentuate faults, and the teacher will watch every student with a critical eye, but *not* with a critical tongue! As mentioned elsewhere in this book, unless the teacher preserves an outward demeanour of patience and corrects faulty action calmly and with the assurance that the student is “getting it right,” he will never preserve the student’s patience and “learning will” at this early stage of the work. Perhaps I may be forgiven if I diverge a moment just to remind the teacher that the most difficult thing for the adolescent and the adult mind to do is that which looks easy and is yet difficult of correct accomplishment. The teacher is on very dangerous ground during this period of keyboard learning, if he is anxious to preserve the attention and goodwill of his students.

Obviously in the above drill, if the student does no more than depress each finger in turn, with no effort of thought, and without concentration, he is wasting his time. The student must be urged to *think* the

SPECIMEN DRILLS

(a) A Rhythmic Drill.

a; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla;
a; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla;
a; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla; sldkfjghfjdksla;

(b) Alphabet Drill.

24 abcdef ghijkl mnopqr stuvwxyz yzabcd efghij klmnop qrstuv wxyzab
cdefgh ijklmn opqrst uvwxyz abcdef ghijkl mnopqr stuvwxyz yzabcd
defghi jklmno pqrstu vwxyz yzabcd efghijklmnopqr stuvwxyz yzabcd

(NOTE.—The alphabet may be set for drill in any number of letters to each group)

(c) Words.

majesty majesty majesty majesty majesty majesty majesty majesty
lanyard lanyard lanyard lanyard lanyard lanyard lanyard lanyard
majesty lanyard majesty lanyard majesty lanyard majesty lanyard

letter which results from the key he is depressing. The teacher may call it out, but it is better still to persuade the student to follow his own "copy," and to concentrate upon it, allowing himself gradually to acquire the natural habit of following the beat of the gramophone record.

§4. SPEED OF DRILLS

The first drill for each stage of the work should be taken at a slow rate of speed. A rate of approximately one stroke a second enables the student to type with the exact degree of concentration between the strokes to secure that definite impression and deliberate stroke which are essential for correct touch, and which form the basis of accuracy and speed. The rate of speed should be increased when the teacher is satisfied that the class has been given an opportunity to receive the correct mental impressions, but the present object of the drill is not speed, and no real attempt need be made to attain proficiency with each drill at more than two strokes a second.

Drills similar to that suggested should be used for each successive stage of the work. It is not the purpose of the present book to provide readers with a complete set of these drills, but the inexperienced teacher will be well advised to restrict his work to the specially set exercises in the textbook he is using—provided that the book is an authoritative one on the subject of Touch operation. A valuable series of drills for special purposes will be found in *Typewriting Tests and Drills*, by A. C. Marshall, B.Com.

It is important when using drills with the class that the teacher gives definite instructions in regard to the margins. That is to say, the students should

all be using the same length of line, so that there is no variation in the return of the carriage amongst the several students. As a matter of fact the expert teacher, directing a typewriting drill, will have some such plan as the following—

He will begin by instructing his students to place their paper supply at the left of the machine; the margin stops will next be adjusted according to the requirements of the drill. The teacher will give the word for the paper to be inserted, for the carriage to be returned to the correct point, for the hands to be placed on the keyboard, and for the exercise to begin. In order to secure evenness of time, the teacher will tap the beat or repeat the exercise at the required rate, before the students begin to type. In the case of music-aided drill he will repeat the exercise with the music, in order that the students can get the correct musical beat and establish its relation with the typewriting beat.

In following the chapters relating to speed and other branches of the training, the reader will secure further ideas in connection with the use of Drills.

CHAPTER XVI

THE SHIFT KEY

§1. METHOD OF APPROACH

MANIPULATION of the Shift Key requires careful instruction on the part of the teacher and considerable practice on the part of the student. In properly graded work the shift key is ignored until the student has mastered the keyboard and is able to operate with sentences at a minimum rate of two strokes a second. The reason for this delay is solely that the student may not be hampered in his mastery of the keyboard by any extraneous detail of operation. The two details of paper insertion and carriage return are of course known to the student, but even these are not treated specifically since operation is never swift enough to incur the risk of formation of wrong habits during the learning stage. To repeat a word of advice given elsewhere in this book, the foundation of successful training in touch operation is the mastery of the keyboard, and there is a psychological as well as a practical reason for this.

The operation of the shift key must, to some extent, throw the hands temporarily out of position, although many teachers attempt to secure shift key depression by the stretching of the fourth fingers alone. In speed work, the hand is slightly drawn back to the level of the first row of keys, and the shift key is depressed with the use of the stronger muscles of the fourth finger, supported by the weight of the descent upon the key. There is no dropping of the wrist, or any muscular interference with the natural relation

of the fingers, hand and forearm, and the action may best be described as a swift and temporary tensing of the muscles.

The aim of specific training in shifting, as it is termed is, therefore, first to reduce the loss of position to a minimum, secondly to avoid unnecessary motion and expenditure of energy, thirdly to secure correct shift key depression, and fourthly to train the student to recover the normal position of the hand after shifting.

It may seem unnecessary to state so elementary a fact as that the fourth fingers, and no others, are used for the shift keys. I do so because there are teachers who insist that the fourth fingers are not capable of this work. The weight required for the shift, on modern machines, is not so heavy that the fourth fingers are incapable of this act. When, because it is more convenient and more rapid, the fourth fingers are supported by the weight of the hand and forearm, it is of course absurd to suggest that other fingers should be used. The shift keys are placed under the control of the fourth fingers in the construction of the keyboard, and expert operators have for years used only the fourth fingers.

§2. SIMPLE STAGES

The teacher is advised to teach shift key operation in simple stages. The first of these stages is the location of the shift key with the fourth fingers. As stated above, instead of attempting to reach the key whilst keeping the remainder of the fingers and the hand in correct position on the guide keys—a motion which results in a painful "stretch,"—there is a swift "sliding" of the forearm, hand and fingers as a whole, backwards and sideways, sufficient only to

result in the finger arriving at the shift key. The motion itself supplies the essential force, and results in a determined depression of the key instead of a hesitating depression.

When the student is able to locate the shift key, during the practice of which he will not be asked to depress it, he must next be taught the correct muscular action. With the fingers over the guide keys, in the normal position, let the student move his fingers in the manner indicated above, at the same time depressing the key. The student should have his attention called to the fact that the nature of the depression is different from that of the character keys. The weight and resistance are different, the leverage is different, and, moreover, the finger must descend with the key, and, when its descent reaches its final point, the key must be held.

This step should be practised until the student can find and depress either shift key without blundering and without hesitation, and until he can return his fingers to the normal guide key position. This ability will be discovered by his being instructed to strike one of the guide keys, say "f" or "j" after the shift key depression and the return of the fingers.

Careful practice in the complete operation will then follow. The teacher should arrange for the complete operation to be taken at first "by numbers," slowly, at his command, in the three separate steps—

One—reach for and depress shift key and hold.

Two—depress letter key it is required to capitalize.

Three—return shift key finger and letter finger to normal position.

An exercise such as the first exercise on page 120 should be used for the preliminary practice.

This exercise covers only the actual shifting

SHIFT KEY EXERCISES

F J F J F J F J F J F J F J F J F J F J F J
A : A : A : A : A : A : A : A : A : A : A : A :
F J A : F J A : F J A : F J A : F J A : F J A : F J A :

A : S L D K F J G H A : S L D K F J G H
A : S L D K F J G H A : S L D K F J G H
A : S L D K F J G H A : S L D K F J G H

Aa Sa Da Fa Li Ki Ji Hi Aa Sa Da Fa
Aa Li Sa Ki Da Ji Fa Hi Aa Li Sa Ki
Ai La Si Ka Di Ja Fi Ha Ai La Si Ka

Aaron Sarah David Fairy Lives Kicks Jibes Hilly
Aaron Lives Sarah Kicks David Jibes Fairy Hilly
Aisle Laird Sieve Kales Dirty Jaunt Fiery Habit

motions. Its purpose is to secure the operations in correct order, but as near to simultaneous action as the actions permit. The exercise does not cover the chief difficulties of shift key operation, which is that of making the operation without interrupting the continuity of the work and without affecting rhythm, speed and accuracy. That is to say, the student will find his chief difficulty in locating the letter which follows the capital letter.

§3. CONTINUITY

When the above exercise has been satisfactorily accomplished, therefore, the student should be given an exercise which combines the actual shift operation and the accurate finding of the key which follows the capital letter. The third exercise on page 120 will illustrate the form of practice required.

Finally, the student should be given an exercise of complete words, such as the last given, the object now being to apply the special practice obtained in "shifting" to the continuous line. If the teacher follows the above plan, he is unlikely to find faulty operation of the shift key in his classes, but it may be useful to note the faults it is possible to make—

1. Indefinite Shift Key Depression: This is due to uncertainty in locating the shift key, and the result is either insufficient depression or a too rapid release of the key, causing the capitalized letter to strike the paper out of alignment, or not to strike the paper at all. A premature desire for speed is often at the root of this fault.

2. Wrongly timed key depression: Due to depression of letter key before the shift key has made its total descent, or after the release has begun.

3. Uncertainty in finding correct character keys

following the use of the shift key, due to incapacity to assume the normal position after shifting.

A further difficulty will be found in the practice of the shift key when its use immediately follows the return of the carriage, that is, when the first stroke of the new line requires the operation of the shift key. The mind has practically four operations to control at the same time—the carriage return, the shift key depression, the capital letter to be struck, and the following letter. Very often the hand returning the carriage is also required not only for shifting, but also for the key following the shift, as for instance in the following example—

We trust that you will favour
Mr. Brown with a visit soon

The teacher, whose object it is to train students to a point of expert operation, will forestall these difficulties and persuade his students to practise general exercises for the purpose of gaining confidence, and also to look out for any evidence of inaccuracy in regard to these operations in future copying work.

CHAPTER XVII

MANIPULATION OF ADDITIONAL DEVICES

§I. ECONOMY OF MOTION

THERE are many devices of the typewriter which require considerable practice in order that the student shall not be hampered in the development of his ability at the keyboard, and these devices should be dealt with intensively in much the same manner as the keyboard itself. That is to say, the teacher should not be content with indifferent manipulation: he should train the student to accomplish every act connected with the production of the typewritten page with the least expenditure of energy and the least wastage of time.

The principal devices of this nature are those relating to the keyboard itself, namely, the Space Bar, the Shift Key, and the Tabulator (or Paragraph) Key, and those concerned with the typewritten page, namely, the Paper Feed Device and the Carriage Return and Line Spacing Lever. In each case correct habits have again to be formed. The attitude which the teacher should adopt is the definite one that there is a right way and a wrong way to manipulate these various additional devices, and that expertness depends upon the adoption of the right way.

The question is often asked, What is the right place in the Course for training in this additional manipulation, since the student is compelled to use the devices more or less during his development of keyboard practice? The answer is that the student must be taught to use the devices correctly as each one becomes essential, but that intensive training

need not be begun until the keyboard is mastered. That is to say, rapid manipulation of the additional devices does not become necessary until the keyboard is mastered and, therefore, it is not necessary to sacrifice keyboard training for the sake of the special form of practice suggested in this chapter.

§2. INSERTION OF PAPER

The first essential for the student's work is that he should be able to insert the paper into the machine correctly. In his early training it is not necessary that he should do this rapidly. It is essential that he should be taught to do so in the right way. Therefore, from the beginning of the work the student will be advised to keep his paper on the left side of the machine. He will be taught to pick up the paper with his left hand, to hold it in position with the left hand only, and to twirl the platen thumb wheel with his right hand. In the early stages he will do this slowly, and the teacher will spend no time in developing a rapid and precise motion for this act.

When the time comes, however, for improved skill in this respect, the teacher will devote some time to securing correct habits and speedy manipulation. The student should be "controlled" in paper feeding, and the following are the points to emphasize—

1. *Use of Paper Guide.* This should be used so that the student invariably inserts the paper at the same degree of the scale. It is convenient for the typist always to make the left-hand edge of the paper coincide with the "O" degree of the scale.

2. The student should be taught to "feel" the paper resting evenly on the paper feed rolls.

3. He should always have the paper holders adjusted so that they hold the paper at corresponding

points in each margin of the paper. This ensures straight feeding, provided the feed rolls are in correct order.

4. The paper should be "flicked" into writing position and not turned or rolled. The student can be trained to get the right amount of "flick" with the platen knob to enable the paper to enter the machine up to whatever writing point is desired. Students, as a rule, are very interested in developing an exact skill in this respect.

5. The student should be taught to judge the straightness of the paper after insertion. The standard is "perfect straightness," and this should be securable by the above methods without any necessity for adjustment. In the case of frequent and serious deflection of the paper the teacher should have the feed rolls correctly adjusted. Training should, however, be given in the correct methods of adjusting the paper with the use of the feed roll release lever, and the student should be taught to depress this with the palm of the hand, leaving the fingers of both hands free for paper adjustment.

6. The removal of the paper from the machine should also be given attention. The student should be trained to hold the paper with the left hand and again "flick" the paper from the machine with a rapid twirl of the thumb wheel. Some teachers advise using the feed roll release and removing the paper quietly from the machine. This method has its advantages, perhaps, but they are not classifiable as rapid or motion-saving.

§3. MARGIN STOPS

Side by side with training in the insertion of the paper, instruction in the use of the margin stops may

be given. Here again, in the early stages of the training, there is no necessity to spend an undue length of time in teaching the students how to use the margin stops. When special attention is given later to this part of the work the student should be encouraged to make the adjustments rapidly and without loss of time.

The main points to observe in the training are (1) the use of *both* margin stops whenever the machine is operated; (2) the relationship between the bell trip and the right-hand margin, and (3) the margin release and its use.

It should be borne in mind that the teacher and the student are at the moment concerned only with mechanical operation. This does not mean that the teacher need refrain from stating the purpose of the various devices and their application to the future work of the office, but it does mean that the student's training in operative ability should not be interrupted by a long discourse, or a lesson on setting out matter with different margins. This is most certainly a form of practice which can be developed later, in the practical application stages of the student's typewriting course.

§4. CARRIAGE RETURN

The importance of the formation of correct habits in regard to the operation of the carriage return lever will be obvious to the teacher when he is reminded that the average length of the typewriting line is fifty strokes, that at an average speed these fifty strokes occupy eight seconds, and that the untrained student, if permitted, will occupy from ten to twenty seconds in the act of returning the carriage, whereas the maximum amount of time

should be three seconds. If this loss of time is multiplied by the number of times the carriage has to be returned in the course of a typist's daily work in the office, it will be found the loss reaches an alarming figure. Apart from this there is the fact that a great amount of unnecessary energy can be expended in the manipulation of the carriage return lever.

The student must be taught to use the forearm only, with as little movement and as little muscular effort of the upper arm as possible.

The governing principles for the return of the carriage are—

1. Immediate recognition of the moment when the carriage is to be returned.

2. Expenditure of minimum amount of force required to secure the return of the carriage to the margin stop without "carrying" it to that point.

3. Prompt motion of the hand from the keyboard to the return lever, and from the lever back to the keyboard after the movement has been made.

4. Performance of this act without interrupting the continuity of the work.

The student must therefore first be trained in the use of the bell trip and its application to the end of the line.

§5. METHOD OF PRACTICE

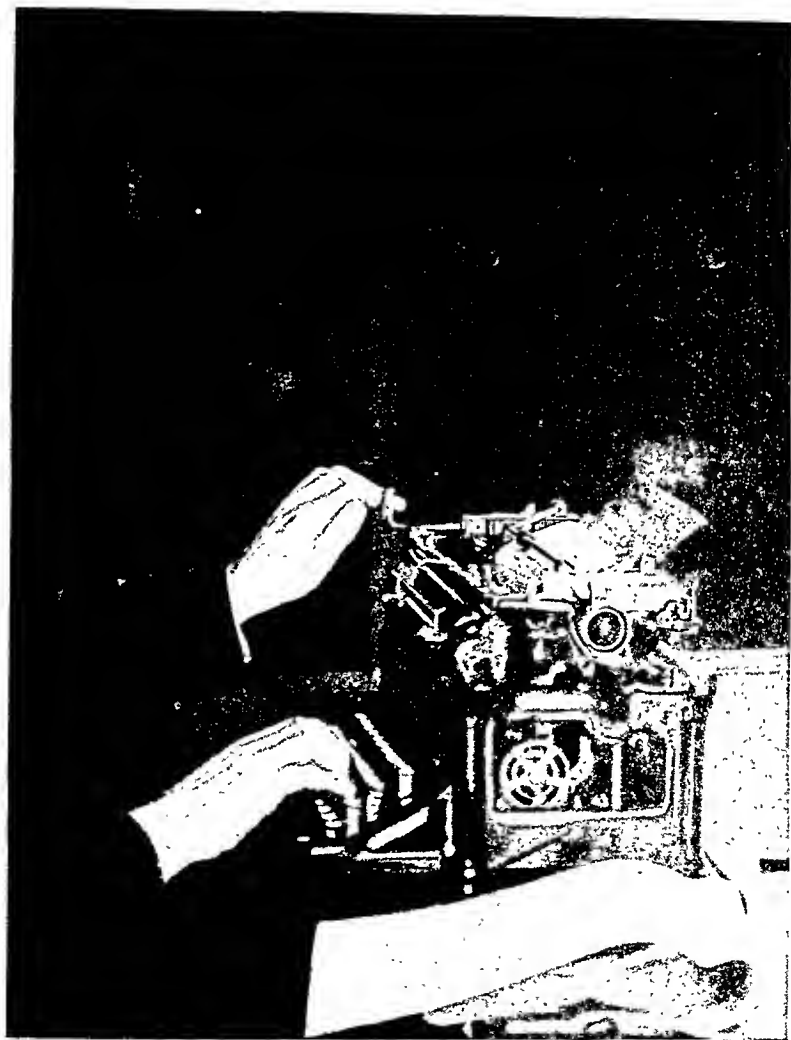
A definite exercise should be taken, preferably from printed copy, in which the student is required to listen for the warning bell, to decide upon the completion of the word, and to return the carriage immediately that word is completed, and to type the first word of the following line.

As in the case of all new typewriting habits, the first practice should be taken slowly, under the

direction of the teacher. The line should be typed at a directed rhythmic beat, and the teacher should continue the counting at the end of the line, allowing say five beats at first, and reducing this to three for normal practice. The rate of typing the line will of course be increased according to the student's keyboard development, and the speed of the return of the carriage is naturally increased simultaneously.

It may, perhaps, be useful for the teacher to bear in mind the method generally adopted for governing the regularity of the right-hand margin. The approximate ending point of the right-hand margin will be fixed to correspond with the width of the left-hand margin. It should be either equal to, or slightly narrower than the left-hand margin—but never wider. With the approximate point of the right-hand margin fixed, each line will be typed to end as near that point as possible—but never more than three spaces beyond. With the aid of the division of words, the typist estimates whether the inclusion of the word—or a portion of it—will cause a lesser difference by placing it in the same line or by carrying the whole of the word into the following line.

At the keyboard stage of the student's work, however, this important detail will not be drilled or perfected. To do so would result in directing the student's eyes to the writing line. This does not mean that the student should not be informed of the principle of line ending, but it does mean that time should not be spent in perfecting the ending of lines. The right place for training the student is when the correct touch habits at the keyboard are ingrained—when no harm is caused if the writing line is occasionally watched. The student is then



ILLUSTRATING THE RETURN OF THE CARRIAGE

Note that the carriage return lever is not gripped. Note also how the right hand retains its keyboard position.

at the stage when he can visualize the end of the line at the sound of the warning bell, and can calculate mentally with promptitude—and without looking—in regard to treatment of the word occurring at that moment.

For this reason the exercises chosen for carriage return practice will comprise at first lines which end always at the same point of the scale, followed by lines ending with words which do not involve any problems for the student. A general rule for the student is : On hearing the bell, prepare to return the carriage.

The reader will probably realize that the above suggestions can be applied to any manipulative action required throughout the course of training. They are but a further illustration of the necessity for intensive training in each small detail—assuming again that the teacher is seeking to produce expert operators.

CHAPTER XVIII

MECHANICAL ACCURACY

§I. THE HUMAN FACTOR

No student can be trained to become an accurate operator unless he is first possessed of the "urge" to be accurate. In this respect the typewriting student is in exactly the same position as the student of, say, Geometry or Arithmetic or Orthography. The average adolescent has an inherent tendency towards carelessness, and this must be conquered if the student is to become an accurate operator of the typewriter. The opportunities for slipshod operation are multiplied by exactly the number of fingers the operator is using at the keyboard, and may be multiplied again by the number of keys each finger operates.

It will be apparent, therefore, to the inexperienced teacher, as well as to the experienced, that he must seek to cultivate in his students the *habit* of accuracy as the basis of any mechanical training in accurate operation. No typewriting textbook can aid the teacher in this matter. He must seek to imbue his students, by careful advice, with the desire to become incapable of error at the keyboard, the will to be accurate.

The teacher has not an easy task, for he must avoid the common fault to be observed amongst many young and inexperienced teachers, namely, that of causing the student to type in a permanent state of *fear* of making an error. Such a state of mind precludes all possibility of accuracy. Concentration

upon *accuracy* must be cultivated, and the teacher should understand that this is not done by calling the student's attention to the tendency towards error. Therefore he should avoid as far as possible the words "error" and "mistake" and substitute in his instructions the word "accuracy." This may seem a small matter, but the experienced teacher will know that to tell a student he must type a certain exercise without a single error generally results in the production of a number of errors and, finally, the despair of the student.

§2. CONCENTRATE ON "ACCURACY"

It is certainly desirable that a student should progress with every exercise until he attains with it a state of complete accuracy. The attitude to adopt is not one of compulsion, however. There should be no "must." There should be no suggestion that the student will not be allowed to go any further until he has done "three copies of exercise so-and-so perfectly"—an instruction so often heard in the typewriting classroom.

"See what is the best you can do" is the way to secure the right attitude of mind for accuracy. "Concentrate solely upon the copy." "Let the fingers do the work." If the fingers have not been trained to do the work, accuracy is practically an impossibility. How often, however, is the student blamed for the fault of the teacher!

This attitude towards the student in regard to accuracy should be preserved throughout the whole of the work. Once his response to it is secured, the way is made comparatively easy. The teacher seeking to induce accuracy as a habit must keep in mind the stage through which the student's keyboard

ability is passing. (See Chapter XIV.) The normal training should be interspersed with special accuracy practice ; that is, certain exercises and drills will be practised by the student with no other object in view than that of reaching a state of complete accuracy with each exercise. This is again an instance of definite, concentrated practice, with the mind knowingly working to secure one end and one end only.

The teacher should be provided with definite letter and word exercises for this purpose on the lines suggested in modern textbooks. These exercises should begin with simple letter reaches, simple letter combinations, frequently occurring syllables, short common words, long words, and difficult combinations of strokes. The exercises can, of course, be considerably augmented by the teacher if desired, and the reader is again reminded that the majority of the exercises given in this book are simply suggestions and not necessarily a complete series. Inexperienced teachers, however, are strongly advised to use the specially compiled exercises I have provided in the *Keyboard Mastery Course*.

In the working of these exercises it is essential that the student should become keen to excel. The object of the exercises is solely to make him familiar with certain movements of the fingers in order that he will be able to type with confidence. There is no harm done if an error is made, provided that (1) the student is allowed to observe the error at the end of his exercise, and (2) the teacher refrains from deploring the error and enlarging upon it in any other way than to explain how it occurred.

The student should be trained to note his error, to type the sentence, word, or combination of strokes again in order to discover whether the mistake

was an accident or the result of faulty technique, or wrong touch habits. The trained teacher is of course able to analyse errors and to detect the cause immediately, and is therefore of considerable assistance to the student in this respect. The principal causes of errors in the keyboard stage are—

1. Wrong finger used, and consequently wrong key.
2. Right finger, but wrong key (a) in same bank of keys; (b) in different bank of keys
3. Wrong order of letters.
4. Missed letters.

There are, of course, other causes of error in rapid operation, but the teacher and the student are not concerned with these at this stage of the student's practice. There are also errors which are not discoverable by the typed result, such as use of the wrong finger on the right key. In course of time, the student will be conscious of this form of error, and it will disappear of its own accord.

§3. THE SECRET OF ACCURACY

Now the secret of accuracy—if it can be said that there is a secret—lies in the limitation of the speed of operation according to the degree of accuracy attained. All successful accuracy training must therefore be based upon the rate of operation and upon rhythm. The method to follow is to take each exercise and allow the student to type it at what may be regarded as his normal rate. This will, of course, be the normal class rate as a rule. Immediately complete accuracy is secured, the rate should be increased by means of rhythm.

To illustrate this, take the simple alphabetical exercise. This may be typed at the rate of one or two strokes a second until complete accuracy is

attained. The time can be judged accurately by the simple process of counting. When accuracy is established with the exercise at this rate of speed, the rate should be increased by one or more strokes a second, according to the stage of the student's work.

All accuracy training should be based upon these lines, and all forms of exercises in the keyboard training stage and speed training stage should be practised at a definite rate of speed instead of an indefinite, type-as-you-please rate. The teacher who gives strict attention to the rate of speed at which exercises are typed is taking the shortest possible cut to accuracy. One of the chief causes of failure in the teaching of Touch operation is the lack of understanding that accuracy is governed by this question of speed. Teachers hear so often that rate of speed must depend upon accuracy that one may be forgiven for endeavouring to show how the reverse is also very much the case.

§4. A PLEA TO TEACHERS

In governing the rate of speed in the practice of the exercises it will be understood by the reader who has followed the important details in the previous chapters that, unless the rate of speed is governed in this way throughout the practice, the student is given no opportunity to develop mental control.

In beginning a new exercise, involving certain combinations of strokes with which he is, perhaps, not familiar, the student is compelled to use conscious thought in operation. Temporary familiarity with the exercise may follow very quickly, and the unrestrained student, satisfied that he has accomplished all that is desired, is prone to "race" over

the exercise. If he is under the immediate control of the teacher as to time, however, his operation remains longer in the conscious stage, and the teacher is able to aid him in concentration. The exact habits become fixed.

When the student is asked to increase his speed, he is not only drawing upon a conscious memory, but he is establishing that memory in his sub-consciousness. When his mind is capable of complete mental control in these particular habits, he is then able to accomplish the exercise with an accuracy that is not accidental, but habitual. The ambitious but inexperienced teacher is urged to study this point, for it contains one of the chief differences between the expert and the inexperienced teacher of touch operation.

The student who is subjected to a course of intensive training of the nature outlined in this chapter will obviously become an accurate typist because he is being trained in accuracy habits. What I have termed "accidental accuracy" is always very much in evidence in many classrooms. The correct habits are so often given no chance to become established that it is unquestionably more surprising when accurate work is the result.

The expert typist is first and foremost an accurate typist, but that he is subject to error goes without saying. But it can also be said, without any exaggeration whatsoever, that the average expert, typing at his normal rate of speed, is incapable of error. The truth is that the expert, typing under stress or beyond his speed, is in exactly the same position as the beginner typing beyond his speed.

CHAPTER XIX

FROM ACCURACY TO SPEED

§I. AN UNDERSTANDING OF SPEED

IN the previous chapter the relationship between accuracy and speed has been shown to be so close that, strictly speaking, it is impossible to talk of the one without implying the other. At the same time, speed in typewriting is to many a vague term, and the object of this chapter is first to define the term speed, and secondly to indicate how speed is developed.

Tests and competitions go to prove that the highest rate of speed generally produced upon the typewriter, in a test of any length of time, as, for instance, one hour, is about 130 to 140 words a minute—a speed computed on a basis of five strokes to the word. This means that the fingers of the faster writers are working at the rate about 11 strokes a second. The teacher, unless his definite aim is the training of high-speed writers, has no particular interest in this high rate of speed beyond its indication of the possibilities of the human fingers working in conjunction with the machine.

It is, however, useful for the teacher to have a standard to which to work and a fixed idea of the number of strokes per second in order that he may train his observation powers in the classroom. The deduction we may make from the exploits of high-speed writers is that the average forty words a minute of the advanced classroom—or just over three strokes a second—is very slow indeed, and that there is every reason to believe that the typewriting instruction of

the future will be capable of producing a far superior average.

Rate of speed has no value in itself. There is no particular merit attaching to the speediest typist other than the competitive zeal displayed in his development of operative ability compared with that of his less skilled or less practised fellows. But it must be allowed that the typist whose speed is brought up to a high standard must prove more valuable in his duties in the business office. It is only fair to admit that the rapid typist is as acceptable to the business man as is the rapid accountant.

§2. ACCURACY WITH SPEED

But it is unquestionably true that a great wastage of time and money takes place in the business offices of the world through the very low standard of operation in existence generally. The employer, however, is content to pay for accuracy alone, up to a certain point, and he will continue to do so, so long as there is a shortage in the supply of rapid, skilled operators. A useful word to the inexperienced teacher may not be amiss, however, namely, that the employer is being rapidly educated in the real standard of typewriting efficiency—that of accuracy *with* speed.

The saying that speed without accuracy is useless has become not only trite, but also very misleading to the not too well informed teacher, who has been led to read into the saying the belief that speed must of necessity demand a sacrifice of accuracy. Anything further from the truth cannot be imagined, and the proof such teachers are able to offer is simply additional evidence of faulty training. The consequence of this attitude of mind towards speed is

obvious in our schools and in our offices. Many school lists betray a remarkably high percentage of error. The "Accuracy" rate ranges from twenty to forty words a minute—nearer twenty, as a rule, than forty.

It is my conviction, after a careful study of high-speed writers in competitive tests, and of students in various schools, that speed is not the outcome of a specific ability. It is capable of development in every intelligent student, and the only causes of failure to reach a reasonably high standard of speed are incapacity to spell, improper training and insufficient practice. That speed is impossible without intensive practice, no one can deny; and the rate of speed reached, given proper training, is dependent entirely upon the amount and the intensity of this practice.

§3. SPEED DEVELOPMENT

The first step for the speed teacher is to make himself properly familiar with the calculation of his student's operation in the number of strokes a second. The teacher should be under no misapprehension as to what constitutes a high rate and a low rate of speed. The simplest way to measure the speed of students under training is by this stroke calculation. It will be remembered by the reader that it has been recommended that certain exercises suggested in previous chapters should be typed at the rate of two strokes a second. This, in the learning stages, allows sufficient time for conscious thought.

A definite aim in regard to speed also should be fixed in the teacher's mind. He should have a fixed "leaving" standard of speed for his students, and this standard should be used for the students of

average ability and not merely for his exceptional students. If the teacher fixed this standard at eighty words a minute, it would not be too high, if Touch operation is given its right place in the course of training, and if the teacher understands his subject. *Generally speaking*, a net speed of eighty words a minute is reached only by the exceptional student in most schools. It is not a high rate of speed. A hundred words a minute may be regarded as a true standard of highly skilled operation. The difference between the eighty rate and the hundred rate is far greater than the difference between forty and eighty words a minute.

§4. DEGREES OF WORD DIFFICULTY

In training from accuracy to speed it is essential that the teacher understands the differences that exist in the mechanical make-up of words as operated with the typewriter keyboard.

Words may be grouped for this purpose in the following way—

(a) Words capable of easy operation, involving generally the alternate use of the hands.

(b) Words containing only easy combinations, irrespective of hands.

(c) Words involving use of the same finger for different keys.

(d) Words requiring use of only one hand.

(e) Very long words.

(f) Unfamiliar words; i.e. unfamiliar to the individual operator.

Representative lists of words of this nature should be prepared by the teacher. *High Speed in Typewriting*, by A. M. Kennedy and F. Jarrett contains abundant practice material of the right kind.

I have dealt with the above question in order that the reader may appreciate the necessity for care in the selection of speed practice material in the early stages, and in order that he may see the necessity for practice with words. Most typewriting instruction books provide lists of words for definite advanced practice. If these lists have been properly selected and carefully graded they should be used systematically in order that the student may become familiar with the difficult combinations of strokes and secure facility in their operation.

Generally speaking, small words which occur frequently in our normal vocabulary do not require special practice. I do not believe in specialized practice or drill upon this class of words, for the simple reason that the student is prone to break the rhythm of his operation if, in his speed practice of difficult matter, he finds certain words fly to his finger tips. Later in his progress he learns to control his operation, as pointed out in another chapter.

The correct method of practising difficult words is to take the individual word at a slow rate and increase the rate as the combinations become more familiar. That is the method to be followed under the teacher's control. In the student's uncontrolled practice, he should not repeat the same word for a number of lines except at quite a slow rate of speed. Another word or more should be alternated with it. Student's textbooks are very often misunderstood on this point. Only the operator can appreciate the mental disturbance—equivalent in a sense to the familiar humorous tongue-twisters, but a far less humorous equivalent—created by attempting to repeat several lines of the same difficult combinations of strokes at speed. Yet I recently saw a book with

pages of this form of exercise instructing the student to type "one foolscap page" of each different word, followed by similiar instructions for groups of figures. Fortunately the school life of the student is too short for the complete accomplishment of all this book demanded in the way of exercises.

Word exercises should be supplemented by sentence exercises. Memorized sentences have a definite use in developing control and finger action, but they have no direct bearing on speed in relation to accuracy. Sentences for this purpose should consist of difficult combinations and words of different lengths.

The frequent repetition of paragraphs, however, which cannot be placed completely in the memory, is an excellent aid to speed development, as all the faculties are being trained during their operation. It will be observed that modern textbooks provide a good proportion of this form of practice.

When the student has proved his ability with graded matter of the type suggested, he should be given unfamiliar but straightforward matter of varying length.

§5. DURATION AND CONTINUITY

The teacher will now seek to induce duration and continuity at varying rates of speeds and periods of time. Beginning with ten words a minute below the student's normal rate, he will first train the student to type for five consecutive minutes, passing to ten minutes, fifteen, twenty, and so on in five minute increases until the day comes when the half-hour and the hour duration test becomes a possibility. The student would not, of course, be asked to type an hour's test very frequently! The fifteen minute

period is the standard period, and it is at this standard that all normal speed practice should be conducted.

The teacher is advised to evolve a systematized plan not only for speed training, but for speed practice. I have frequently observed that the only "plan" followed for speed practice is that the students are placed at their machines with a text-book or copy matter, and allowed to type from any page and at any rate of speed. Students so treated are only filling the waste-paper basket, and learning many wrong habits for future use in the office.

Properly directed, the daily period of speed development practice is one of the most valuable factors in the training of the operator, and careful attention to it will result in an increase in the percentage of accuracy and the rate of speed of the class as a whole. I would recommend readers to follow up this subject by studying the section devoted to it in my book *Notes of Lessons on Typewriting*.

CHAPTER XX

THE USE OF SPEED TESTS

§I. THEIR VALUE

SPEED tests have a definite use in the training of the typist, and the modern teacher will introduce them immediately the student is able to operate the keyboard and manipulate the machine with perfect control—but not before. Like the majority of the additional aids to the training of the operator, however, only a judicious use should be made of tests of this nature. One test a fortnight is considered sufficient for the purpose the tests fulfil, although the majority of teachers prefer to give the tests once a week. It is totally unwise to use daily tests of the nature under discussion.

The truth is that under the conditions of a test the average student does not do his best work—at all events not until he has conquered that innate feeling of stress which affects any one of us in all tests of skill or endurance. And the result of repeatedly producing work of a standard below that which the student knows to be his real ability cannot have anything but a depressing effect upon his progress.

At the same time speed tests provide an excellent incentive to the classroom student. Beyond everything else it gives him something to work for. No student is indifferent to his position in the periodical list of typewriting results, and, moreover, such a list provides the teacher with a fairly accurate guide to the students' progress and their respective ability.

There is, further, a disciplinary effect upon the

student. The natural tendency of the student, when engaged in a speed test for the first time or the first few times, is to force his speed, to type with the feeling of "haste." The result, as a rule, is a crop of errors which possibly the student would not make when working under normal conditions. But he hears the apparent speed of the operation of his competitors; he is anxious to "keep up" with them; his mind, untrained under test conditions to concentrate upon his copy, is dwelling upon what seems to him to be his own slower rate of operation. He flounders, and is lost. When the result of his efforts becomes known to him, the teacher is able to point out why his total shows so large a percentage of error. Gradually the student learns that he must not "hurry," that speed depends upon his ability to train himself to be indifferent to his surroundings, to keep his mind solely upon his copy, to preserve the rhythm of his stroke, and, if an error should occur, to forget it immediately it has occurred; to be, in fact, scarcely conscious of the error.

§2. TEST CONDITIONS

Speed tests should be conducted as closely as possible under identical conditions each time they are given to the students. The copy matter used should always be of the same degree of difficulty. It should be what is called "straight matter"; that is, matter which requires nothing in the nature of setting out, and which has nothing in the nature of "handicaps" such as groups of figures, capitalized names, broken paragraphs, italics or underscoring, and so on. The keen teacher will provide himself with a supply of test matter such as is used for championship tests and examination tests, and various matter

can be selected from journals and other publications and counted out for test purposes.

The teacher must decide for himself whether his periodical tests shall be conducted upon Championship lines. The World's Championship Contest is conducted under strict rules, which teachers might well adopt for their own school typewriting tests and examinations.

The teacher should modify the rules to some extent. He will not submit his students, for instance, to one hour's copying, but will reduce this to fifteen minutes, which is the length of time competitors are required to type in the schools contest. It is a debatable point whether the deduction of ten words for each error made is a wise one for the average school. Since accuracy is the aim of the teacher, however, the full penalty should be imposed. The reduction of error is then a much more noticeable item in the results, as the students' work improves. Some teachers, however, finding that the errors under test conditions are alarmingly numerous, and disturbed by the fact that the multiplication of these errors by ten would frequently result in the student's rate of speed becoming a "minus quantity," prefer to deduct only one word for each error made. It is a question to be left to the teacher. The expert teacher, sure of the ultimate outcome of his training, will impose the full penalty throughout the tests.

§3. CLASSROOM PUBLICITY

The teacher should give full publicity in his classroom to the test results, and the result list of each test should be placed upon the classroom notice-board together with that of the previous test. There should also always be on the board the result

list of the first test of the term. Too much cannot be said of the value of these lists to the work of the classroom. They provide one of the greatest incentives for thorough work. The lists should be prepared in accordance with the general test record illustrated on page 150.

Although it is but a small detail, the names and records of the three students at the top of the list may usefully be typed in red. The teacher should never forget that, as a rule, his students are young. There are simple ways of appealing to these students, and even the teacher whose mind is obsessed with the earnestness and seriousness of his task would do well to study how he may aid himself in his work by using methods that appeal to the people of a younger generation than his own.

Care should be taken that the students are treated fairly in regard to the machines used in speed tests. The expert teacher, needless to say, will ensure that his machines are always in good condition. I say this in spite of the knowledge of the derelict machines that may be found in the classroom of the teacher who has not learned that economy lies in the efficient upkeep of his machines. If, however, there are machines whose condition renders them incapable of perfect and continuous operation, they should not be used for test purposes. There is no necessity to handicap the student in any way, and the average student resents nothing more than working in the classroom or playing in the sports field under conditions that are not identical with those of his competitors. Careful note should be made of the machines used by each student, and throughout every test during the term's work he should use only that machine.

The teacher should discuss the result list with his students. There is one good lesson always to be derived from it—one that will be apparent by examination of any result list. Take the fictitious list given in the specimen record on page 150. It will be seen that the student at the top of the list has typed less words (gross) than the student who is fourth. But he has made no errors. A similar comparison may be made between the fifth and tenth students. The teacher will urge the students to make accuracy their aim throughout the test. The test should be regarded by the teacher and the student as the time for typing *up to* the acquired speed, and not the time to force the speed with the foolish hope of thereby beating competitors. Unfortunately, however, the average speed test is conducted on these latter lines with the inevitable result.

§4. THE ACCURACY TEST

Side by side with the ordinary speed test there should be conducted a speed test of an entirely different nature. I introduce it here because it has been my experience that this form of test is very often totally neglected. Perhaps it should be more correctly called the Accuracy Test. Immediately the class has reached the stage where speed work can be commenced, the teacher should seek to mark the progress of his class by using a time test at a definite rate of speed. Let us suppose he will start at thirty words a minute. This test should be conducted in the following way—

A piece of matter should be selected, of average difficulty, but otherwise purely "straight copying," of sufficient length to cover the fifteen minutes'

period at the rate of speed proposed. Before the test commences the teacher should give the students five minutes' drill on rhythmic exercises or sentences at the rate of speed at which the test is to be typed. This drill should be continuous under the directed beat of the teacher, aided by music or otherwise.

Immediately the drill is finished the students should be instructed to prepare for the test, and they should be directed to preserve the same rate of speed throughout the test as that of the drill.

The teacher will then start the test, prefacing it with two lines of the drill again, in order to secure the rate of stroke a second, the students going straight on to the test, without stopping, immediately after the completion of the second line. If the work is music-aided, or if the teacher continues to tap or beat the stroke, the students will naturally keep to the speed required. It is possible, however, to train students to preserve the speed without this beat—hence, the introduction of the preliminary drill. The difficulty is to prevent the natural inclination to increase the rate, and this can usually be remedied by the teacher "pulling" the students back with an occasional beating or tapping of the time.

The record secured by this test is of more value to the teacher than that of the ordinary speed test. This record, of which an illustration is also given, see page 151, shows not only the percentage of accuracy of the individual student, and of the class as a whole, but it shows the increase in speed week by week or fortnight by fortnight, of the class as a whole. The same piece of matter can be used for each test, but it is preferable to use new matter. If thirty words a minute is the rate used for the first week, the teacher will increase to thirty-five the

SPEED TEST RECORD

DATE: January.

CLASS: "A"

TEST MATTER USED: Inter: Contest:

TIME: 15 Mins.

Name	Position Gained	Gross Words	Errors	Net Words	Words per Minute
SMITH, M.	1st	1125	0	1125	75
BROWN, K.	2nd	1105	5	1035	70
JONES, L.	3rd	1000	10	900	60
LEWIS, K.	4th	1170	36	810	54
MOORE, R.	5th	750	0	750	50
BRUCE, P.	6th	840	12	720	48
HENRY, O.	7th	720	0	720	48
GREEN, S.	8th	600	60	nil	minus
WYNNE, T.	9th	500	65	nil	minus
PAGET, W.	10th	750	75	nil	minus

ACCURACY TEST RECORD

DATE: 4th January.

CLASS: "D."

TEST MATTER: Reference 12.

RATE: 30 words per minute.

TIME: 15 Mins.

No. OF WORDS: 450.

Name	Position	Position Last Test	No. of Errors	Percentage of Accuracy
BENNET, A.	1	1	0	100
SHAW, G.	2	2	3	99.3
WELLS, H.	3	3	5	98.9
BENSON, E.	4	4	6	98.6
MILNE, A.	5	6	10	97.7
KIPLING, R.	6	5	12	97.3
DOYLE, C.	7	7	20	95.5
LOCKE, W.	8	9	25	94.4
VACHELL, H.	9	8	30	93.3
MAUGHAM, S.	10	10	35	92.2

following week, and so on in rates of five words a minute up to the point where, of necessity, further increase is no longer practicable. He will be governed in this question of increasing the rate solely by the average accuracy percentage, and will not pass on to a higher rate until he secures a reasonable accuracy. Or, alternately, he will make 100 per cent the sole standard of passing on to the higher rates, and will "pass out" students as they secure that 100 per cent.

§5. STUDYING THE TEST PAPERS

The expert teacher attaches great importance to the papers produced in all test work. It is true that the average teacher is not keen to burden himself with anything in the nature of clerical labour in connection with his instruction, but the successful teacher does not regret any additional hours he may devote to work of this nature. The checking of papers, however, need not fall to the lot of the teacher. The method to follow is to instruct the students to encircle all errors whilst the teacher reads back the test matter immediately after the test. When this is done the students will be asked to exchange papers, and the teacher will read the test matter again in order that the errors may be re-checked. This is usually productive of an accurate checking, and it provides necessary training in the reading of typescripts. The number of errors and the percentage should be immediately counted by the students and noted on each sheet. The papers should then be collected for the teacher's attention.

At a convenient time the teacher will rapidly check the corrections and the percentages and make his record. The expert teacher goes further. He

examines the individual errors. It is in these errors that he will find the true results of his instruction. He will discover the nature of the errors. He will analyse their cause. Exceptional errors will be made the subject of general discussion and correction. Frequently occurring errors—obvious proof of the individual student's faulty work—will be dealt with, with a view to their eradication. The expert teacher is not satisfied until he has got all the information he can from the test sheets handed in by his students.

Discussion of a point of this nature with teachers has often induced the remark: "Yes, but we have no time for this kind of thing." I am, however, convinced that the successful teacher has never yet been able to limit his work to the classroom.

All test matter should, of course, be returned to the student, who should be provided with a folder in which to keep his work. The folder should be on the "binding" principle and not a container of loose leaves, and it should be used for the preservation of test papers only. With the folder should be bound the student's own speed record, designed according to the illustration on page 153.

I would recommend the reader to study the suggested records illustrated in this and the following chapter, and to devise some similar or simpler form for his own use. In making this recommendation, however, I would add a word of warning—that the teacher should avoid attaching more importance to the records than to the training. That is one reason why I have suggested the limitation of speed tests to one test a fortnight.

CHAPTER XXI

CORRECTION OF STUDENTS' WORK

§1. ITS RELATION TO PROGRESS

THE methodical and regular practice of correcting the student's exercises and other typewritten production plays a considerable part in the progress of the student. The knowledge that his work will be examined and returned to him with the teacher's written corrections—indisputable evidence of the teacher's interest in his progress—has both a moral and an encouraging effect upon his efforts. As is the case with most practical activities and enterprise, the keen student is eager to feel assured that he is doing right. To work constantly in a state of doubt as to whether the method and effect are correct or not, as is the case, for instance, with the self-trained student, results generally in the gradual decay both of ambition and energy. The product of the average student and of the average worker in any walk of life must meet in some way and at some time the expert's approval, or, where approval is not merited, some obvious indication of the cause of failure.

The thorough teacher attaches great importance to the correction of work. Without it, the teacher has no check upon the practice work, and cannot be said to be properly acquainted with the student's progress. The expert teacher, who is also an expert operator, already possesses a quick and critical eye for all types of production, and the inexperienced teacher should seek to develop this ability.

From the earliest stages to the most advanced, the typewritten page betrays not only any ordinary faults, such as weakness in key location, obvious inaccuracies in spelling, and faulty arrangement of work, but also faults in technique, such as uneven key depression and incorrect touch.

It is true that with the work of the beginning stages, when the student is in a more or less experimental condition and working directly under the control of the teacher, there is not perhaps the same necessity for a thorough examination of the student's work. The teacher is more concerned with the action than with the effect, and every endeavour should be made during this stage for all work both during instruction periods and practice periods, to be done only under strict supervision. But the time soon comes when the student is required to engage upon a definite scheme of practice work—usually one hour's practice daily—and in the well organized typewriting classroom the exercises are made to form a permanent record of the student's progress.

Complete textbooks usually give an arrangement of these exercises in the form of "budgets" which the student is required to complete and retain in a special file for the teacher's examination and reference. With a definite scheme of marking, and with neat corrections in red ink, the teacher may make valuable use of these "budgets" from the very first set of practice exercises, throughout the whole course of training, to the advanced stages of the training in typewritten form. Unhappily, although in the early stages such a system as this is introduced, the scheme often falls by the wayside: the student's budget file becomes an untidy collection of papers:

the student's work is frequently allowed to cease to be graded, and the value of the method is lost. The fault in such instances often lies with the teacher, who, in the midst of his many duties, frequently neglects this part of his work. The student, observing that his work is not examined or corrected, becomes careless in his practice, and frequently, except when under strict supervision, does not trouble to work upon his set exercises at all.

Fortunately the properly organized typewriting classroom is proof against this failing. It is my experience that the successful teacher is usually one who pays strict attention to the production of the graded exercises throughout the whole of the course, and who encourages his students by giving the "work file" regular and serious attention.

§2. METHOD OF CORRECTION

In the early stages of the work the practice budgets will disclose to the teacher such facts as those mentioned above, and additional weaknesses such as inability to use the space bar correctly, failure to observe the margin bell, faulty return of carriage, and, in the later stage, faulty shift key manipulation, faulty line spacing, inability to end lines with approximate evenness—in fact, almost every fault possible in typewriting work may be traced in the completed production.

The method of correction should be standardized, and a time of correction should be fixed by the teacher so that he may make a habit of the task and never fail his students in this respect. The teacher should not forget that apart from the value of the correction and marking itself, the proper and regular filing of the students' work provides a

valuable disciplinary training to the prospective office worker, from the point of view of order and method, which should not be lost. The teacher should also remember that the student's enthusiasm can be kept alive only by the teacher's enthusiasm. The teacher's enthusiasm may easily become lax and stale, but this does not mean that he need fail to be regular and methodical in carrying out his part of the scheme of training, or that he should fail at any moment to *display* enthusiasm. It may not be too big a claim to suggest that the teacher with his class is often in much the same position as the actor on the stage, who may occasionally be very jaded and weary of his part, but would be only courting failure if he allowed his audience to become aware of the fact.

The inexperienced teacher is recommended to formulate a definite plan for correction of his student's work, and to standardize his methods both for correction and marking. Some teachers provide the student with a keyed chart of common errors and correct the work by marking a number against each error. For instance, such errors as the following examples would be contained in a complete and numbered list of all possible errors—

- 1 Uneven stroke.
- 2 Space bar forgotten.
- 3 Wrong key depressed.
- 4 Keys " followed through," resulting in " shadow letters "
- 5 Punctuation marks receiving too heavy a touch.
6. Carriage returned inaccurately, etc.

The student is instructed to attach this key, in its complete form, to his budget file, and to examine his corrected work in conjunction with it. My experience has been, however, that the direct method of

correction is not only more illuminating to the student but less liable to escape the necessary attention.

§3. ABUSE OF CORRECTION

I regard it as important that the teacher should cultivate neatness in his corrections. Further, he should refrain from making any comment upon his student's work on the exercise papers, beyond the actual correction. I have seen, for instance, such glaring comments as the following, written across a student's work, by teachers capable of more thought: "Very carelessly done"; "A disgraceful piece of work"; "It is useless to type exercises in this way." Such comments show an entire lack of understanding on the part of the teacher. The effect upon the student, far from being a disciplinary one, is only to kill ambition and effort. The errors should simply be marked, and the student left to judge for himself as to the worthiness of the work or its entire lack of merit.

Condemnation should be avoided. So many factors may contribute to a student's temporary failure, especially in the typewriting classroom, and certainly a permanent note of the teacher's temporary "disgust" is of no help to any student. I often feel that many teachers make a great error in the typewriting classroom by treating their more or less grown-up students as though they were infants, and by assuming an extreme air of superiority. The teacher should cultivate a restrained attitude of expert guidance with his student rather than that of a learned instructor. Young teachers are frequently at fault in this respect and lose an opportunity of securing real progress, by failing to preserve a happy relationship between themselves and their

students. The correction of exercises should not be allowed to increase the possibility of the development of the wrong kind of feeling.

The teacher may or may not use a system of giving class marks in conjunction with the ordinary exercise corrections. It is not necessary to do so if the progress of the student is recorded by the marks gained in test work.

It should be added, perhaps, that when the student's work has progressed sufficiently, the teacher's corrections should always be prefaced by the student's own pencilled corrections. This not only enables the student to be trained in the examination of his own work, but it also assists him considerably if he may be allowed to feel that he is the first to discover that his work is not up to standard.

CHAPTER XXII

CLASS RECORDS

§I. THEIR PURPOSE

It will be generally found that the keen typewriting teacher keeps careful record of the progress of his individual students. It is only by this method that he can obtain a correct idea of his own training capacity, an exact knowledge of the student's powers, and a check upon the individual student's progress. The keeping of records, however, invites considerable criticism on the plea that they occupy so much time both of the teacher and of the student. There is certainly much to be said for the criticism from that point of view. But when it is realized that the provision of proper records provides one of the greatest inducements to the student in the typewriting classroom it will be admitted that the time occupied upon them is more than counter-balanced by the increase in the rate of progress.

It must not be overlooked that unless training in operation is based upon a definite scheme or plan of work the student's chances of success are necessarily handicapped. Sufficient has already been said in the previous chapters in regard to this statement, and the majority of typewriting teachers to-day make good use of a simple system of recording the student's position and progress with the work.

The natural basis of the class progress record is the textbook employed, but where the textbook does not provide for complete training in operation—as is frequently the case—it is necessary to base the

operation part of the record upon a graded scheme of work such as is outlined in this book. The illustration given on page 163 is a simple form of record used. It is based on a thirteen-week period of training in operation, but the illustration is given only as a suggestion, and no exercises have been specified. The teacher should adapt this form of record to his own plan of training, or to the textbook he favours.

Each Student Record should commence at the first week of the chart ; that is to say, the number of the week should not be reckoned as the number of the week of the term, but the number of the week of the individual student's training. The chart will thus enable the teacher, who has a true estimate of the standard of time required for reaching efficiency in the various exercises of the course, to judge whether too much time is being taken, or whether the student is showing exceptional ability. The standard of efficiency for passing from one exercise to another should be the production of perfect copies with 100 per cent accuracy and at a known number of strokes per second, in accordance with the suggestions made in other parts of this book.

§2. THE WEEKLY TEST

The use of progress records of this nature involves the practice, common to many schools, of holding a weekly test. The Friday typewriting period is generally the best time to devote to this test, and although this practice is again often criticised as using up a valuable portion of the instructional period, it will be found by the teacher that this criticism is ill-founded. In the first place the students are not idle in any way during test periods,

TEACHER'S RECORD OF PROGRESS

PRELIMINARY OPERATION COURSE

Student's Name	Course Began	Weekly Passing-Out Test												
		1	2	3	4	5	6	7	8	9	10	11	12	13
SMITH, M. . .	6 Jan.	×	×	×	×	×	×	×	×					
BROWN, K. . .	"	×	×	×	×	×	×	×	×					
JONES, L. . .	"	×	×	×	×	×	×	×	×					
LEWIS, K. . .	"	×	×	×	×	×								
MOORE, R. . .	"	×	×	×	×	×	×	×	×					
HENRY, O. . .	"	×	×	×	×	×	×	×						
BRUCE, P. . .	"	×	×	×	×	×	×	×	×					
GREEN, S. . .	"	×	×	×	×	×	×	×	×					
WYNNE, T. . .	13 Jan.	×	×	×	×	×	×	×						
PAGET, W. . .	"	×	×	×	×	×	×	×						
ROBIN, P. . .	"	×	×	×	×	×	×							
PRIDE, E. . .	"	×	×	×	×	×	×	×						
FOOTE, R. . .	20 Jan.	×	×	×	×	×	×							
NEALE, M. . .	"	×	×	×	×	×								
CAIRN, H. . .	9 Mch.	×												

and in the second place the knowledge of the weekly test cannot be but a strong incentive during the remainder of the week towards preparation for the end of the week.

Some teachers prefer that the records are completed on the normal work of the classroom and not on the weekly test based on the week's work. The student is thus able to record his progress from exercise to exercise on a basis of complete accuracy: usually he is allowed to pass from one exercise to the next after producing three accurate copies. In this way he is not delayed in his progress in any way. The argument against this method is that the object of the work in the operation stage is not to pass from one point to another, but to secure definite type-writing habits: and as the fixed amount of time devoted to any one portion of the work is based upon a scientific knowledge of the requirements of that portion, there should be only complete accuracy from the student at the time of the weekly test. It is possible to train students so successfully that each small stage of operation reaches week by week a point where even test conditions do not affect the student's powers of accurate operation.

§3. THE TEACHER'S RECORD

The teacher's record of his class—so frequently absent in the typewriting school—should be made up regularly from the student's own records. This teacher's record is a summary of the student's records. Reference to the illustration given will show not only how it should be prepared, but how valuable it is to the teacher in planning his work and in knowing thoroughly the progress and abilities of his several classes of students.

Strictly speaking, the teacher who has only one class or whose work is limited to a mere dozen students, as is frequently the case in the small typewriting school, will not consider class records necessary. He is very familiar with the work of each student. The record is still useful, however, as an incentive to the student. The suggestions made in this chapter are intended primarily for the typewriting teacher who is not only responsible for several classes, but who is also in the position of having to place before his Principal details of the progress of his work. Such teachers find it necessary to have a definite plan of recording in a way which not only gives the information desired, but also succeeds in interesting the students in their progress.

The form of record outlined will of course be used also for the further stages of the work, and the teacher will have no difficulty in adapting it for this purpose. Speed records should be similarly kept when the student has reached the stage where speed practice commences, as detailed in the preceding chapter. These should be made up on exactly the same lines and should be designed to show the number of weeks the student takes to progress from one rate of speed to another. Usually the speed rates are marked in advances of ten words a minute, but it is sometimes found more practicable to increase at the rate of five words a minute.

CHAPTER XXIII

CORRELATION OF SHORTHAND AND TYPEWRITING

§I. ITS RIGHT PLACE

THE ability to type rapidly and accurately from shorthand notes is a vital part of the student's training. Despite this fact, it is occasionally neglected entirely, and, on the other hand, it is occasionally introduced at far too early a stage of the student's work. This chapter, therefore, should be studied by the inexperienced teacher in order that a proper understanding of the nature of this part of the work may be acquired.

It must be borne in mind that if the student is destined to become a shorthand-typist, the ability to type is not in itself sufficient. There must be established a natural relationship between the shorthand note and the typewritten production.

The modern school, needless to say, is not likely to be found guilty of such an omission from the course of training. Indeed, it is safe to say that in the modern school considerable provision is made for the acquisition of real ability with the typewritten transcription. Frequently, however, the fault of introducing the work too soon is also to be found.

Two things are necessary before the student should be allowed to type from shorthand. Firstly, the correct habits for touch operation should be completely formed. That is to say, the student should not be allowed to type anything but straightforward printed matter until operation has reached the "sub-conscious" stage. Secondly, the student

should be capable of *reading* shorthand rapidly before he is asked to type from shorthand.

The process involved in typewriting from ordinary printed matter has already been described. Immediately a further element is introduced into operation, as is the case when copying from shorthand, where the eye is no longer seeing actual letters or groups of letters, there is a change in the mental process. The brain has more work to do, and therefore it must be trained to work more quickly. Despite the statement often heard that it is not possible to type from shorthand as rapidly as from longhand, this is not the case. Given proper training, the only handicap lies eventually in the student's shorthand ability.

§2. STAGES OF SKILL

Let us examine the process. In reading shorthand the unskilled student is first compelled to "spell" the outline piece by piece. Gradually the outlines become readable to him as a whole, commencing with the simple grammalogues and simple words, and proceeding with the contractions and longer words to the whole of the normal shorthand vocabulary. It has been emphasised for some years now that, with shorthand, facility in reading should be developed from the early lessons. The importance of this instruction to the shorthand-typist needs no enlargement. Given the ability to read shorthand rapidly the difficulty of the beginner in transcribing on the typewriter is considerably lessened.

In this process of transcribing from shorthand notes with the typewriter the student first recognizes the outline; secondly, he visualizes it in its longhand letters; and thirdly, he translates these letters

from his mental vision (instead of his actual vision) into the necessary finger movements. The difference between this process and the normal process of typewriting from longhand matter will therefore be seen to be nothing more than the replacement of the actual sight of the letters, groups of letters, or words, or groups of words, by a purely mental vision. Eventually, when the mental habits have been properly trained with practice, the sight of the outline is sufficient to induce the correct finger movements without the translation of the outline into the mental vision of the individual letters.

The average student finds a difficulty in accommodating himself to the new mental procedure. There is hesitancy in his work, inaccuracies occur, omissions creep in, and the mental processes become occasionally disturbed; there is not that easy, subconscious action with which normal operation has been accomplished.

These hindrances, however, can all be eradicated if the student is trained in properly graded stages. Many students are asked to accomplish shorthand transcription tasks of advanced difficulty without any preliminary training whatsoever. The student is asked to run before he can walk. The shorthand work is not harmed in any way, but all the careful training in touch operation is more or less rendered useless.

§3. METHOD OF TRAINING

The correct method of training in typewritten transcription from shorthand is to begin with copying from printed shorthand plates of passages previously read and already familiar from the shorthand point of view to the student. Although this work must

not be begun until the student can type ordinary matter with complete accuracy at definite rates of speed, this first stage of the practice in typewriting from shorthand need not be delayed until the student has become an accomplished shorthand writer.

The stages of the training should be as follows—

- 1st Stage—Type familiar matter from shorthand plates ; that is, from printed notes previously read and thoroughly known to the student.
- 2nd Stage—Shorthand plates of easy matter, not previously read.
- 3rd Stage—Shorthand plates of difficult matter not previously read.
- 4th Stage—Shorthand notes of familiar matter, previously read : that is notes taken by the student from dictation and read by him before transcription.
- 5th Stage—Shorthand notes of easy matter not read before transcription.
- 6th Stage—Shorthand notes of difficult matter not previously read.
- 7th Stage—Typing from own shorthand notes of correspondence and other matter requiring a simple form of setting out.

This latter stage would not, of course, be introduced prior to the ordinary instruction in correspondence and setting out from normal printed copy.

In the training stages the dictation used for this specific purpose should consist of straightforward copying matter. Here again the tendency of the inexperienced teacher is to use correspondence only, thus involving a further demand for conscious instead of sub-conscious effort by the student in pure operation. The experienced teacher will use every care in the selection of the matter, and, as far as possible will see that it is well graded in degree of difficulty. Teachers who experience difficulty

in the choice of material are wise to limit the work to the graded shorthand material published in book form and in *Pitman's Office Training* and *Pitman's Business Education*. Incidentally, the graded lessons will help solve the problem of the typewriting class that is composed of students at different stages of the shorthand studies.

It is almost unnecessary, but perhaps wise, to add that the student should not be given shorthand plates of a difficulty beyond his stage in the shorthand studies. The place for that form of transcription practice is not in the typewriting classroom, if anywhere. If the student is in the middle of his shorthand training all typewritten transcription work should be based on shorthand matter some distance prior to the stage he has actually reached in the study of the principles of the system. Obviously, real correlation between the shorthand class and the typewriting class cannot begin—as it is frequently allowed to do—with the dictation and the production of the typewritten letter.

§4. AIDS TO TYPEWRITTEN TRANSCRIPTION

The real beginning of the mental training without the actual printed word for “copy” is with the typewriting of memorized sentences. Some teachers usefully augment the work of typewritten shorthand transcription with further memorized sentences without copy and with the typewriting of sentences of original composition by the student direct on to the typewriter, and by dictation from the teacher straight on to the typewriter. The value of these aids needs no further comment except that none of them is to be used *until the student has thoroughly acquired the correct touch habits*: this, in order that

he may use his "consciousness" solely for the process of translating the words he visualizes or hears into finger movements. Further, great care must be used, when practice of this nature is being given, to ensure that the student's eyes—now unoccupied—are not employed in watching operation.

The expert typewriting teacher is frequently very much concerned when he observes or hears of students being directed to transcribe shorthand with the typewriter before they are capable of reading or of transcribing with pen or pencil. Fortunately we are improving our methods everywhere to-day and many of these errors in training are rapidly disappearing.

To sum up, the teacher must ensure first that the typist is not attempting to transcribe on the typewriter shorthand that he is incapable of transcribing normally; that he is not asked to type from unfamiliar shorthand matter before he can type from familiar shorthand matter; and that he is not asked to type from his own notes until he has developed skill in typing from printed notes. The reason for this last statement is that the printed notes are more easily read, as a rule, and that they give the student more opportunity to concentrate upon the "translation" into typewriting movements.

An attempt is frequently made to combine the work of the shorthand classroom with that of the typewriting classroom for this particular stage of the work. True correlation of this nature can be made only in the final stages of the student's business training. Very rarely can the combination be satisfactorily arranged in any other part of the course. Certainly it should not be attempted before the

student has been trained in typewriting from shorthand, and in any case, it is better far for the typewriting teacher to dictate the matter to be typed. Greater care is thus possible in the choice of material, and it will be found that the organization of the work of the school is far less disturbed.

CHAPTER XXIV

APPLICATION OF MECHANICAL SKILL

§1. TIME OF INTRODUCTION

REFERENCE to Chapter IV will show that in the Operation Stage of the study of typewriting nothing has been introduced that has no direct connection with the acquisition of the correct Touch habits. That mechanical skill is the first essential for the typist cannot be disputed.

But, immediately the student is able to operate the machine with accuracy and at a rate of, say, forty words a minute—which is a sufficient rate to prove the definite establishment in the mind of the correct touch habits and a sufficient basis for the development of high speed—then mechanical operation may be regarded as of secondary importance, and the real training of the typist begins. In other words, the stage is reached where the student begins to learn how to apply his mechanical ability to the requirements of the commercial or other office.

Emphasis has already been laid upon the necessity for this delay. Briefly, every task the typist is asked to do outside the scope of straightforward copying, prior to the sound establishment of the correct Touch habits, requires the use of the complete consciousness, and frequently the use of the eyes, the result of which is a distinct hindrance to the progress of the necessary sub-conscious habits the student is seeking to form. That there is no actual delay in the student's training by postponing the branch of the work dealt with in this chapter will be

apparent to the expert Touch operator and to the experienced Touch teacher. It is a fact that it is not obvious to the inexperienced operator or to the teacher who does not understand the principles of Touch operation. The old principle that "mere" operation can be acquired during the process of learning the several uses of the typewriter is still held by the majority of typewriting and other teachers whose acquaintance with the machine is practically nil.

The student who can operate the machine upon straightforward copying matter at a reasonable rate of speed, with confidence and accuracy, is in a position to use his machine in the further training he is about to receive, with a feeling of mastery. Immediately he knows *what* he is required to do with the machine he knows *how* to do it. The picture of the untrained student trying to "persuade" his machine to do the right thing at the right time and in the right part of the sheet of paper will be a familiar one to many readers!

§2. PASSING-OUT TEST

The teacher should set a definite standard of attainment in operation and arrange for a "passing-out" test which shall qualify the student to commence this second stage of his training. This test could be based reasonably upon a speed of forty words a minute for, say, fifteen minutes, with complete accuracy. It may be argued that to reach this standard of efficiency would take too much of the student's complete period of training. That will depend entirely upon the nature of the instruction and the conditions under which the student learns and practises. Careful study of the principles of Touch operation and Touch instruction should go

far towards fitting the untrained teacher for better results than he may be enjoying.

A detailed scheme of instruction should be arranged for the work of the second stage of the training. There is still to some extent a necessity for the grading of the work. The student should not be asked to solve an intricate problem of production with the typewriter before he is practised in producing the simple forms of matter common to the duties of the typist. Moreover, there are still certain details of manipulation in which the student must become skilled more or less to the same degree as with ordinary keyboard operation. The teacher should always make a point of practising the student in the mechanical essentials for the several productions before allowing him to proceed to the complete production.

To illustrate this point, take the production of the typewritten letter, which is very wisely and very naturally made the first lesson in "application of mechanical skill." The teacher, analysing the letter in regard to the mechanical operation involved, will observe the following points—

- | | | |
|---|---|----------------|
| 1. Use of Margin Stops. | } | ESSENTIALS |
| 2. Proper understanding of Writing Point. | | |
| 3. Use of Tabulator Stops and Key. | | |
| 4. Use of underscore. | } | NON-ESSENTIALS |
| 5. Use of bi-chrome ribbon device. | | |

The lesson will therefore fall in three separate parts, the first two of which may be taken in whatever order the teacher may prefer.

I. General Principles of Letter Arrangement—

- (a) Note Heading.
- (b) Size of letter and line spacing.
- (c) Date.
- (d) Name and Address.

- (e) Salutation
- (f) Body of Letter and Paragraphs.
- (g) Subscription
- (h) Signature Title.

2. Mechanical Production of Required Effects—

- (a) Accuracy in paper insertion.
- (b) Size of Letter and Margin Adjustments.
- (c) Line Spacing Adjustment.
- (d) Setting of Tabulator Stops for paragraphs and parts of letter.
- (e) Depression of Tabulator Key by Touch
- (f) Governing right-hand margin at end of lines.

3. Actual Operation—

- (a) Practice in securing correct positions for the various parts of the letter
- (b) Slow production of letter, concentrating on mechanical operation
- (c) Complete production of letter at normal speed

It will be seen that the first of these parts may be made the subject of a "theoretical" lesson away from the typewriter, if desired. It is stated elsewhere in this book that students should not be seated before the machine listening to a lecture not directly concerned with operation, since the average student when seated at the machine is eager to operate it. There is also a further question of economy in occupation of the typewriting classroom to be considered in this respect.

§3. A COMPARISON

The above illustration is given to show the correct treatment of instruction in the production of any form of typewritten matter. It is simply a question of enabling the student first to know what he is going to produce, secondly how to produce it, and lastly to make the actual production. If the student is made familiar with the details of manipulation and operation before being required to proceed with the

complete production he is being given a reasonable chance to use nothing but touch habits in the operation, and to receive a permanent impression of the essential movements of manipulation. Therefore, before proceeding with the complete letter, the teacher should practise the student in setting margins, in securing the correct "positions" for the several parts of the letter with the tabulator stops, in the operation of the tabular key, and so on, as detailed above.

The reader is asked to compare this method with the old-fashioned method of placing before the student a facsimile letter and commanding him to copy it—a method which results in the intelligent student discovering by deduction and much loss of time an inefficient way in which to secure the desired end, and in the unintelligent student destroying all the touch habits he has learned, and failing to produce a correct copy.

It is not the purpose of this book to treat fully with the wide subject of Typewriting beyond the points in which mechanical operation is essential. The average typewriting textbook is in itself an excellent guide to the teacher for this particular stage of the work. The teacher should combine the suggestions I have made with a careful study of a typewriting textbook which contains abundant material for practice in the several forms of typewritten production, and discover how he can best give the student definite instruction and practice in all mechanical movements essential for their accurate, prompt and correctly arranged production.

This is only another way of saying that after the acquisition of Touch operation, which implies mastery of the keyboard, the student should be

given an opportunity to acquire mastery of the machine as a whole. The average junior typist in the business office is frequently far from that. Too often may the machine be said to be the master. I would charge this unhappy position of the junior, not entirely, but mainly, to defective or incomplete training. Mastery of the machine cannot be secured in one or even ten lessons. It is dependent upon the use of the instructional method suggested herein and upon the completeness and amount of practice in the several forms of typewritten production which the student is permitted to secure.

The successful teacher will prepare a careful and complete list of typewritten forms which will include such items as—

Correspondence of varied length and difficulty.

Envelope addressing and card writing.

Simple display.

Straightforward manuscript, involving indented matter, use of inverted commas, and other "accidentals" liable to interrupt the normal process of operation.

Legal documents

Invoices and Statements.

Etc.

This second stage of the training results in producing a student capable of good operation. There should be nothing of a normal nature that he cannot do with the machine. His work should be perfect in its method of production and in its appearance. There should be none of that carelessly executed and untidy-looking work which, unfortunately, may so often be seen in the unorganized typewriting classroom as a result of the students being directed to produce something without knowing how to manipulate the machine for each specific purpose, and without being able to operate the keyboard by touch.

§4. SPEED DEVELOPMENT CLASS

Side by side with the work of this stage, provision must be made for training in speed development on the lines suggested in the chapters relating to speed, but there should be no attempt to combine speed practice with the actual work of the stage. At this point of the student's training no account should be taken of the time taken to produce, for instance, a page of displayed matter. Accuracy of work, correct methods of manipulation, development of judgment and taste, are of far more importance at this stage of the course than speed—a factor which will develop in these forms of typewriting in proportion to the development of knowledge.

Speed development should be restricted to keyboard operation and its necessary accompaniments with ordinary straightforward copying matter alone. An adjustment of the time-table will therefore be made to accommodate this continuance of speed training at the keyboard.

Increasing the student's speed in keyboard operation often presents itself as a problem to typewriting teachers in certain kinds of school. The problem requires careful examination. The experience of teachers differs as a result of the variation in teaching methods, in teaching abilities, and in the conditions under which the instruction is given.

The main difficulty appears to me to be discovered in training students to type accurately beyond the "40 words a minute" stage. In the first place, it is essential that an exact understanding should be arrived at as to what 40 words a minute represents. In the classroom it should represent the net accuracy speed of students who have completed a modern course of typewriter keyboard instruction. With

this rate established, it is possible to talk of speed development. Without this rate as an established skill in the classroom, it is an absurdity to conduct "speed training" classes.

Assuming, therefore, that a class of students is able to type accurately at 40 words a minute, and that the aim is to establish a speed of 70 words a minute, the first problem is the development of the student's own rhythm, as distinct from the regular beat-by-beat rhythm of the lower speeds. Speed does not come of its own accord. Any typist can type fast, but she cannot type accurately at faster or increasing rates without training. Speed must be developed by degrees, and the teacher must know how to control those speeds. With the basis that is formed by the keyboard method used in my *Keyboard Mastery Course*, the right foundation for speed training is present. The development of the student's own rhythm must be gradual. Students must not be allowed to copy day after day at their own speeds. With a properly established 40-50 words a minute—a speed that is best operated by the regular beat-by-beat key depression and not by the student's own rhythm—carefully controlled practice at increasing speeds can be safely introduced. The training should start with a suitable short paragraph, the students typing first with the gramophone, thus inducing continuous key-by-key depression at approximately 50 words a minute. Then, without the gramophone, the piece should be typed again, at the same speed, and then a third time with the suggestion that attempts are made to increase the operating rate. The class should then be stopped, and the work examined for errors. The wrongly typed words should be practised. Another copy should now be

typed, after those students who are typing too fast have been instructed to reduce their speeds, and those students who are typing too slowly to try still to increase.

This may sound an unprofitable way of spending the time, but like most of the serious training of the typist nothing is accomplished by doing anything just once. It is the patient practice of the same process that makes the expert, and, when by these means it is found that students have attained an average of 50 words a minute, they should continue with this form of practice at this speed upon longer pieces. A ten-word-a-minute increase should be consolidated, first, with short paragraphs, then with three-minute tests, then ten-minute tests, then twenty-minute tests. If students are allowed to type continuously at a controlled speed, some effect will be seen in the training.

I would like to explain my use of the word "continuously." It is the fact that a large percentage of students, left to their own devices, will never type more than one line without stopping. It is possible to find students who have never typed a whole page of copy from the beginning to the end of the page, and preserved continuity of operation and of the sight of the copy. Generally speaking, the students are not to blame. Unfortunately, the teacher is sometimes to blame. He has not trained his students to type for uninterrupted periods. In offices, particularly, it is possible to observe typists who stop at the end of every line. This absurd habit is one of the chief causes of mis-copying, and of failure in typewriting examination papers involving the copying of straightforward matter or of manuscript matter.

Now copying, even under the kind of control outlined above, is not all that is required. The essentials of operation should be observed, such as the correct machine position, the correct muscular condition of the arms, hands, and fingers, the place for the copy, the way to train students to follow copy, the elementary fact that division of attention between machine and copy is fatal to speed and accuracy, the way to return the carriage without mental or muscular interruption, and even the part fatigue plays in the important question of speed training. Instructors who are training students for speed should make a study of all these things, and abandon the idea that "just copying" produces the expert typist. There are many false impressions held about this question, but most of them will be avoided if the need for hard work on the part of the teacher as well as on the part of the students is realized.

CHAPTER XXV

MECHANISM AND CARE OF MACHINE

§I. COMPLETE TRAINING

THE time for definite instruction in the mechanism and care of the typewriter is rightly during the second stage of the student's training. Many teachers, however, prefer to make this instruction a gradual process, deeming it essential to break what is regarded as the "monotony" of instruction in operation by complete lessons in the several details of this phase of the training.

Unquestionably, however, during the important stage of keyboard training this part of the work should be left completely alone. The student should be taught only the essential details that are more or less explanatory of the finger and other actions he is desired to make. This point of view is held solely because of the danger which exists in attempting to combine any form of typewriting instruction with touch operation. It is reasonable to assume that no time is saved in the student's training period by delaying the completion of the ground-work.

There is, moreover, the important point to be considered that the student's "curiosity" in regard to the mechanism should not be awakened or encouraged at the initial stages of the training. It should be definitely discouraged for reasons best known to the owners of typewriters. Familiarity with methods of manipulation and operation, however, is a natural preventive against damage to the mechanism, and therefore during the second stage of the student's

training, or at the close of it, considerable attention can be given to such details of the mechanism as are essential for the efficiency of the business office typist.

It is true that a certain knowledge of the names of some of the parts of the machine is necessary in order to give instruction, and the above remarks are not intended to suggest an avoidance of this, but to recommend that detailed instruction to the extent of "lessons" in mechanism is left alone until the right moment.

§2. DEGREE OF KNOWLEDGE

The question arises, How much knowledge of mechanism should be given to the student? The teacher who is himself content to remain ignorant as to the mechanism is able to provide his own answer to this question. Apart from this fact, however, there are certain details of mechanism without a knowledge of which the student cannot be regarded as properly equipped for the office. For instance, so common is the fact that many typists are incapable of replacing a typewriter ribbon, that it has even been made the subject of a humorous cartoon in a well-known daily paper!

The typist's training should undoubtedly be completed by instruction in all details of mechanism essential to operation. These may be summarized as follows—

(1) Main Divisions of Construction of Machine—

- (a) Frame.
- (b) Carriage and component parts.
- (c) Keyboard and component parts.
- (d) Type basket.
- (e) "Inaccessible" mechanism.

(2) Mechanism—

- (a) Principle of type-bar action.
- (b) Principle of escapement.
- (c) Principle of ribbon mechanism.
- (d) Principle of key tension.
- (e) Principle of shift key action.
- (f) Simple adjustments peculiar to individual machines : e.g. type impression adjustment.
- (g) Feed Rollers.
- (h) Tabulator mechanism.

(3) Cleaning and Oiling—

- (a) Removal of dust from all accessible parts.
- (b) Cleaning of type.
- (c) Cleaning of type basket.
- (d) Frictional parts.
- (e) Carriage rods.
- (f) Oiling.

Under the first group the teacher is able to instruct the student in the general construction of the typewriter. He should seek to interest as well as instruct his student. He should provide himself with material for his own knowledge and for his lessons by acquiring information as to the history of the typewriter. The handbooks and catalogues of the various typewriter companies are always available for his study of the individual machines, and the teacher should be a keen student of such material, which usually contains the necessary details of construction and mechanism, sufficient for class instruction purposes.

The opportunity may be taken also to discuss the specific features of individual machines, the reasons for certain differences in nature or position of devices, the use of different letter-type, of different lengths of carriage, of exceptionally constructed machines (non-standard). The uninformed teacher will himself gain considerable knowledge from the typewriter

companies' representatives, or by examining his machines with an inquiring mind.

§3. OPERATION AND MECHANISM

In the second group the teacher will give more specific instruction. It is here that he will make the complete association between the details of touch operation already acquired by the student and the principles of mechanical action. An interesting and valuable lesson to the student, for instance, is that based on the type-bar action. If the teacher has the ability to demonstrate, or if he possesses a knowledge of mechanics, or if he is capable of black-board illustration, he is still better equipped for his lesson. My *Book of the Underwood Typewriter* contains detailed information upon these points as well as upon many other aspects of the typewriter in actual use. The fact that the book is confined to one machine should not prevent readers from studying the mechanical side from its pages.

The student should be made acquainted with the mechanical action set in motion by the depression of the key. The Universal Bar should be explained; the student should be allowed to understand how the depression of the key succeeds in (1) propelling the type-bar, (2) allowing the carriage to "escape," and (3) moving the ribbon mechanism. The keen teacher, fortunate enough to find in his regular typewriter representative someone with an intimate knowledge of mechanism, will possibly be able to persuade this gentleman to oblige the class occasionally with a demonstration of this nature.

The student will be warned that, both in the school and in the office, all adjustments other than those of a simple nature should never be undertaken by himself.

The typewriter representative is never reluctant to enter a business office, and, apart from this fact, the companies' anxiety that their machines should be perfectly adjusted at all times is a natural one. Their responsibility would naturally cease in the case of a machine damaged by unskilled interference. The aim of the teacher in all mechanical instruction should be rather that of enabling his students to learn what may have gone wrong, than to learn how to put anything right.

In the third group more practical instruction is possible. The cleaning of the machines in the classroom can be undertaken under guidance more or less daily. In the case of machines used by several classes in the course of each day a schedule should be made for the fulfilment of these duties by the advanced classes in rotation. The teacher will ensure—

DAILY—Type cleaning.

Dusting.

Removal of dust beneath machine.

Wiping all carriage rods with oiled rag.

MONTHLY—Thorough cleaning of all parts. Oiling of frictional parts as detailed in the typewriter companies' instruction books.

The book mentioned above contains a working schedule for this part of the typist's training.

Emphasis should always be placed on the necessity for putting this same process into practice in the business office. An expert typewriting teacher cannot avoid remarking upon the frequent dirty state of machines in many business offices. In these days of careful study of "efficiency" one is disposed to be surprised that business employers are not more observant of this detail of organization. The average *factory* business office, on the contrary, frequently

applies the rules of the factory machine shop to the office, with very satisfactory results in regard to upkeep of typewriters.

The cure would appear to lie in the typewriting classroom, and the teacher who has been inside the office where such details are neglected, and who keeps always in view the sight of comparatively new machines clogged with eraser and other dust, or machines with worn platens, battered and ink-filled type, should seek to instil in his students the advantages to rapid operation and appearance of work which accrue from proper care of the machine. It is less easy to persuade the employed office typist, who so frequently answers criticism with the remark that "we are far too busy to find time to clean typewriters." Although the *up-to-date* business office is not usually guilty of this fault in mechanical upkeep or of the employment of the indifferent typist, the classroom can do much towards the removal of these evils.

§4. THE ERASER HABIT

It may not be necessary to remind the teacher that erasers should never be used in the typewriting classroom. The first reason for this is the damage they cause to machines—an important consideration for the average school. The second reason is that accuracy habits are better developed without the permanent suggestion that the eraser is the remedy for error. A third reason may also be stated—namely that it is frequently quicker and certainly far neater to re-type the matter on a page than to correct with the eraser. The teacher, the typist, and the business employer who regard the appearance of the business letter and its contents as an important asset will immediately agree with this statement.

If, however, it is desired to instruct the student in the use of the eraser, the instruction should either be limited to one machine whose value has already considerably depreciated, or it should be limited to instruction without an actual eraser. This can be done by providing the student with typed matter with single letters and parts of words omitted, and instructing him to insert and adjust the paper in order to secure exact alignment, and then to type in the omissions. He should be told to withdraw and re-insert the paper several times in the course of completing one exercise, and further, he should be instructed in the task of accommodating words consisting of one or two more letters than the space that has been allowed ; e.g., typing "there" in a line in which "her" has been typed by mistake.

The reader may hold contrary opinions to these, but the teacher who has enjoyed experience both in the business office and in the typewriting classroom will be ready to admit that the classroom is very frequently the breeding ground for the eraser habit and its attendant evils.

CHAPTER XXVI

NOTES ON DISPLAY AND TABULATION

§I. MECHANICAL KNOWLEDGE

IT is not intended that the advanced stages of the student's training should be dealt with in the present work, but a few notes upon the treatment of certain phases of this stage—especially those in which mechanical operation is of importance—may be of use to the reader.

Immediately the student's task ceases to be one of simple copying from straightforward text he is compelled to develop other qualities than those concerned with facility at the keyboard. The page of paper, instead of being a medium for the reception of so many lines of copying, assumes very much the same relation to the typist as the page is to the printer. So far as the arrangement of the matter in the paper space available is concerned, he must develop a typewriting judgment, or a sense of "artistic" display.

In order to do this he must first understand well the mechanical and technical facilities at his disposal. The typist has very limited material at his command in comparison with that of the printer, and the basis of "measurement" is in no sense the same. The typist has but one size and pattern of type; his letter space is a fixed quantity; and he is bound by considerations which in many cases do not affect the printer's task.

The duty of the teacher, therefore, is to train the student in the use of his machine in order to secure

certain effects ; secondly, to enlighten him as to what are the desirable features of the displayed or tabulated page ; and thirdly, to train the eye, the brain and the hand to work in accurate and prompt co-operation.

The details of the first part of the work have been already dealt with sufficiently in Chapter XXIV. The aim of the teacher will now be to quicken the typist's judgment and manipulation. The class teacher will direct his students so that they begin with simple forms of display and gradually progress to work of a more intricate nature. A course of training should be arranged which will include, in very much the order in which they are mentioned, the following—

Page Headings and Centring of Titles.

Notices or Announcements.

Displayed advertisements and other matter, as, for instance, material submitted to a printer.

Simple columnar matter, including figures and money columns.

Price lists.

Full page column figure analyses.

Profit and Loss Account.

Balance Sheets.

Legal Endorsements and other Legal Display work.

§2. MEASUREMENT OF THE PAGE

The student should be taught how to regard the typewritten page. The width of the page is measurable in letter spaces ; the length from top to bottom in single line spaces. A quarto page (10 in. \times 8 in.) for instance, is measured by the typist as eighty letter spaces from the left to the right edge, and sixty single line spaces from the top to the bottom edge. With ordinary pica type, on the standard machine, ten letter spaces measure an inch, and six single line spaces also measure an inch.

In all displayed and tabulated work, the student

should be taught to assume an imaginary margin of one inch around the page, in which margin no matter will ever appear. If exigencies of special matter require it, he may reduce this margin to half an inch. He should be taught never to "fill" a page—that is never to type to the extreme edge of any of the margins.

The student should be taught always to insert his paper so that the left edge of the paper coincides with the "O" degree of the scale. The scale is frequently not understood completely by the typist, and he should be directed to practise its use so that it provides him with the rapid guide to the writing point whlch it is intended to be. The average type-writing textbook provides abundant material for practice, and also the essential explanatory detail in regard to the use of the scale, centring, etc., and the inexpert teacher is advised to study such details and become familiar with the method and the actual operation. There is frequently a difference in the position and the nature of the scales in the different models of machines, and these differences should be appreciated so that the teacher is, at all events, able to impart instruction in their definite use. The tabulator scale should also be given attention. It will be difficult for readers who are unacquainted with the interior of the business office to believe that there are typists at work who do not know how to set tabulator stops and who have never used the tahulator. The teacher should offer careful instruction in all such details, including so simple a point as the fact that the tabulator scale coincides with the carriage scale.

In his study of the mechanism of typewriters, the teacher will become acquainted with such knowledge

as that, for instance, of the existence of two methods of setting tabulator stops. (This, by the way, was the subject of an R.S.A. typewriting examination question which puzzled very many students and not a few teachers.) There is the ordinary method of setting the stops by hand—that is, inserting the stops at the required degrees of the rack in the normal way, and there is the method adopted on most modern machines, namely, the “Self-setting” device, by means of which it is necessary only to place the carriage at the point where each tabulator stop is required, and the stop is automatically inserted by depressing the “setting” key.

§3. DEVELOPMENT OF SKILL

The mechanical details of the displayed page having been made familiar to the student with the aid of practice in each detail of operation, the next step is the development of skill in arrangement, or taste. In effect, the student is doing no more than securing balance. The typewritten page must be based upon neatness and simplicity, and any attempt to secure display on the basis of variation and ornamentation will result only in unpleasing work. Taste can be developed only by studying well-arranged typewritten pages, which the teacher will not fail to provide either from available specimens or by producing them himself, and by considerable practice in the various forms.

As mentioned already, the eye must be trained to work in quick co-operation with the hand. If an operator is carefully watched when at work upon the displayed page, many useful lessons can be derived. The first point which will be observed is that his eyes never glance at the keyboard! He

does use his eyes, however, for the paper, taking his glance away from it only to study his copy. From this it will again be seen how important it is that the Touch habits should be perfectly formed before the student is permitted to practise upon display work, since the eyes *must* be used on the page. The expert typist will be observed to work very quickly, fully informed as to how certain effects may be secured, and, through long practice, able to gauge the correct writing point at all stages of the production. It may be as well to mention that the student should be trained in the use of what is termed the "line gauge" or platen scale. This is fitted close to the platen, and, with most models of machines, the top of this scale is adjusted so that it coincides with the actual writing line. This fact, plus an understanding of the "writing point," very easily located on most machines, is the key to rapid work and exact alignment.

The teacher should arrange for his class always to practise each display or tabulating task several times. The first copy should be more or less experimental, and should always be subjected to close examination and correction by the teacher. The second copy should be made with a view to eradicating faults and becoming familiar with the movements involved. A third copy should be made in order to secure rapid production.

When the student has acquired a certain facility with copying displayed and tabulated pages, he should finally be directed to devise displays and tabulations himself. He should be provided with unarranged material and asked to centre it and arrange it in display form. He should be given a collection of facts suitable for arrangement. For

instance, details of a new publication may be dictated for display purposes. Or he may be asked to tabulate a list of names, being required to place them under certain headings in so many columns. Or, if desired, a lesson in indexing may be combined with this practice, the list of names being properly classified and indexed in handwriting by the student before he enters the typewriting classroom.

§4. STENCIL CUTTING, ETC.

Instruction in stencil cutting and duplicating will follow ordinary capabilities at the machine. Stencil cutting is not a source of difficulty to the expert operator. There is no real difference so far as operation is concerned between typewriting on a wax or other stencil sheet and in typewriting on paper. There is need perhaps for a still more deliberate touch in order to avoid any possibility of "light" letters, and on some machines the wide capital letters may require a double impression. The touch typist, however, never has difficulty in producing a perfect stencil. It is the outcome of confidence. The average student, and perhaps the average junior typist, is disposed to cut the stencil in a state of fear. The typewriting teacher who provides the necessary amount of practice in stencil cutting to produce the expert stencil cutter will avoid this fault.

Very many privately owned schools fail to include real instruction or sufficient practice in stencil cutting and duplicating. Perhaps the proprietors consider the cost of stencils too high! If this is the reason, some system of charging the student for stencils should be made, and the student should be urged to become an expert stencil cutter even

at an extra cost. The applicant for a post who can add to the ordinary qualifications the fact that he is an expert stencil duplicator, is almost sure to receive preference, other qualifications being equal.

Manifold work may be included in the student's training side by side with instruction in the production of the typewritten letter. The instruction necessary is too slight to require special treatment by the teacher. There are a few details, such as the care of carbon, quality, number of copies possible with various thicknesses of paper, and weights of carbon papers, etc., which may form the subject of an Office Practice lesson ; but, as will be obvious to the reader, the use of carbon paper in no way affects operation. The inexperienced teacher, or the inexperienced operator who is teaching typewriting, may be reminded perhaps that students are sometimes disposed to think that the production of carbon copies requires a heavier touch at the keyboard. Except that, as in stencil cutting, care must be taken to avoid " light " strokes, the average machine and the average carbon paper require no such change of touch so far as single copies are concerned, or up to, say, four or five copies, after which number the appearance of the work is generally far from satisfactory.

CHAPTER XXVII

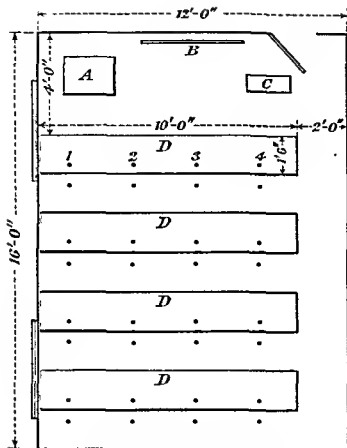
THE CLASSROOM AND EQUIPMENT

§I. THE IDEAL ARRANGEMENT

THE Typewriting Classroom of the up-to-date Business Training School should be arranged in a way that will enable the teacher to give whatever demonstration may be necessary and at the same time facilitate his observation of the student's work at the keyboard. Therefore as large a room as is possible should be chosen for the classroom and, if possible, a teacher's table and demonstrating stand should be provided with a raised platform or dais. This platform is, of course, for demonstration purposes only—the typewriting teacher cannot give instruction from a desk!

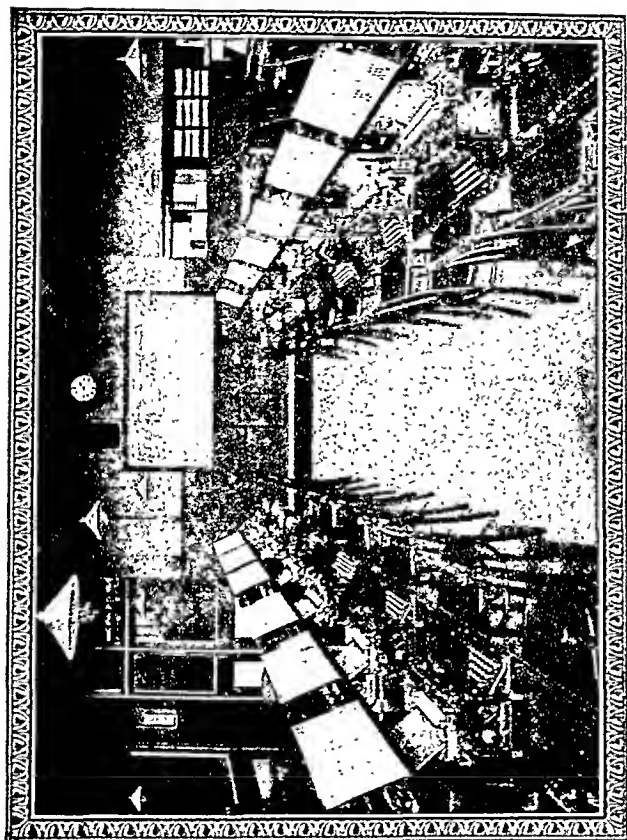
The ideal arrangement is for the students to be seated, all facing one way, with the teacher's desk at the one end of the room and the rows of students' tables easily accessible. The plan given on page 196 will illustrate a good arrangement. It would, however, be absurd to attempt to lay down strict laws in regard to the arrangement of the classroom. There is too great a variation in the types of school covering typewriting instruction. In certain schools, for instance, typewriting as a subject is relegated to far too inferior a position in the curriculum to allow the authorities to make any real provision for instruction. In the very small business training "school," one room has frequently to do service for many subjects.

The diagram given provides for the accommodation of sixteen students. No class, in my opinion,



PLAN OF SMALL CLASSROOM

- (1) Demonstration Table.
- (B) Blackboard
- (C) Gramophone Table
- (D) Students' Typewriting Desks



AN UP-TO-DATE TYPEWRITING CLASSROOM

should ever exceed twenty in the typewriting classroom except in the advanced stages. The ideal typewriting table is a solidly constructed table or "bench"; the height should be not less than 26 in., and not more than 30 in. In the absence of adjustable chairs, solidly constructed chairs should be used, with seats not higher than 18 in. The average "bentwood" chair does not remain stable after much use in the busy typewriting classroom, and the best economy is to use chairs that will remain firm for a number of years. The ideal chair is a good adjustable chair that is not only capable of adjustment, but also stands firmly and provides the right kind of support to the correct part of the back. Some form of cushion should be devised for the ordinary chair, in the case of students who are not sitting at the correct height, or chairs varying in height should be provided.

Where individual typewriting tables are used instead of long tables, they should be well-made and of solid construction. Some excellent all-metal typewriting tables can now be obtained—although rather expensive—providing not only solidity and sound-reducing qualities, but also a useful form of storage for the student's folders and material. Individual typewriter tables, however, are not so economical in regard to space as the "benches." These benches should be specially made or carefully chosen. The type of table or bench to avoid is one that "vibrates" or shakes on its legs with the movement of the machines. The simple form of bench, which is nothing but a table top standing on trestles, should be avoided at all costs.

The tables should be so placed that the teacher is able to stand at the end of each row of students and

observe the hands in action. This arrangement will probably be found capable of adaptation in any classroom.

Copy-holders should be used by all students. With the aid of a carpenter these may be made of wood, in the form of a permanent attachment to the benches. There are, however, several forms of portable copy-holders on the market, and the type-writing teacher should endeavour to add these to his normal equipment.

§2. MACHINE EQUIPMENT

The principal and most important item of equipment is that of machines. The number of machines required by a school is dependent upon the organization of the classes. For instance, twenty machines may be sufficient for sixty students if the time-table admits of the sixty students being instructed in three classes of twenty students each. This would mean that the machines are occupied for six hours daily—one hour's lesson, and one hour's practice for each class. It will be found, however, that with proper grading of the work, the number of students in a class varies, and provision should be made, if possible, for spare machines, or for the formation of additional classes if necessary.

It is the general practice to base the number of machines required upon the apportionment of one machine to four students—an apportionment which is not too generous. A school with eighty type-writing students can certainly be conducted with twenty machines, but any increase in this number of machines will be found of considerable advantage to the time-table.

Teachers, or school proprietors, should use great

care in the selection of machines for instruction purposes. As far as possible, they should purchase only new machines. Perhaps it will be sufficient if I say that the Typewriter Companies are, fortunately, the friends of all typewriting teachers and business schools, and it is only necessary for the buyer to place himself in touch with the leading companies, who mostly have a special School Sales Department, and all the help and advice possible will be forthcoming.

Many teachers, or prospective teachers, however, do not know that machines are supplied to schools on most advantageous terms, which not only provide for economical purchase, but also for an excellent system of periodical replacement of new machines for the old.

It is unnecessary, perhaps, to add that the schools are also great friends of the Typewriter Companies, since every single machine in a school is producing at least four operators of that machine per annum, and the typist's preference for a particular machine frequently carries no inconsiderable weight in the business office. Incidentally I may add that, in my experience, I have not found a more helpful or a more courteous body of people in the business world than that associated with typewriters and their manufacture and sale.

Opinion is very divided as to whether a school should limit its machine equipment to one model or whether it should spread the equipment over all the well-known machines. To some extent the machine equipment should be representative of whatever different makes of machines are used in the particular locality which the school is serving. The ideal is, of course, to provide only

machines of the same model for use in the first stage of the student's work, and for a part of the second stage, and for the machines used in the third stage to be completely representative. The individual teacher or school proprietor, however, must be guided by his own preferences and by local requirements. To equip a school with one model of machine only, throughout, is a big handicap from the practical point of view, and to have too great a variance is a great handicap from the learning standpoint.

Where, through chance or necessity, the machines used in the first two stages of the work are not of the same model, care should be taken that each individual student always works upon the same model. To ensure adherence to this plan, the machines should be numbered and a list for each class displayed in the room with the students' names against the respective machines.

Metal covers are generally regarded as inconvenient in the classroom, and these should be replaced by the cloth covers usually supplied by the makers. Whilst at work, the students should be instructed to place these covers over the backs of the chairs, where they are less likely to be damaged than elsewhere. Folding the covers in any way usually tends to hasten their deterioration. The covers should be replaced whenever the machines are not in use—even in the day-time. Dust is the enemy of the typewriter, and some teachers go to the trouble of using a dust sheet for every machine; the machine is stood on this dust sheet, and, after use, the sheet is drawn up over the machine, and the cover placed over the sheet-covered machine. Cheap material can be purchased and cut up into the required sizes for this purpose.

§3. ADDITIONAL EQUIPMENT

A good blackboard is an essential part of the classroom equipment. This should be placed in a prominent and easily viewed position. Excellent wall charts can be obtained from the Typewriter Companies; these very useful charts illustrate the typewriter parts. As mentioned elsewhere, I do not regard keyboard charts as necessary.

A useful addition to the classroom is the provision of office correspondence trays or baskets—one for each machine. There are several different uses to which these trays may be put. They may be used as containers for the paper supply, or they may be used as receptacles for completed work, or even for waste paper. A wastepaper basket of some kind should certainly be provided. Many students, untrained in this respect, succeed in littering the classroom tables and floor to a point which would not be tolerated in any other classroom or in any office. This, again, is a fault to be traced to the teacher and not to the student.

For the advanced stages of the work, a flat duplicator and a rotary duplicator should be provided. Additional machine equipment is not essential, unless instruction in the operation of book-keeping machines, addressing machines, and similar appliances is made a special feature of the school. It is usually sufficient for the teacher to have a *practical* knowledge of these additional machines, and to be in a position to arrange for special demonstration and instruction for any student who secures a position entailing special skill of this nature. The showrooms of the manufacturers of such machines are usually prepared to arrange for demonstration and instruction.

Machine cleaning material is usually provided by the manufacturers of typewriters with each new machine supplied. With the exception of the type-cleaning brush, which may well be tied to the machine, this material should be stored in one place and issued only when required for use by the advanced students. The brushing of the type, however, should be made a regular habit by the students. The instructions of the makers should be followed in regard to brushing the type. Usually it is essential that the type is brushed with a forward and backward movement and not a sideways movement. As explained elsewhere, erasers will not form a part of the normal typewriter equipment.

The typewriting classroom should be provided with a commodious and lockable cupboard for the storage of paper and other material. Typewriting paper should be purchased in economically large supplies. In order to ensure economic use of practice paper, it is usually sold to the students at a reasonable price. Economy can be easily taught to the student without this necessity. As stout a paper as possible, consistent with cost, should be used. The platens of the machines should be protected by rolling a sheet of paper around them; although this results in a slight ridge where the end of the paper overlaps, it is not sufficient to injure the machine, or to deflect seriously from the appearance of the work. Some schools insist upon the use of backing-sheets. Either method is good, although the backing-sheet is liable to be regarded as cumbrous and is sometimes forgotten or neglected. If the paper method is used, the paper should be changed at least daily.

The question of suitable textbooks is an important one. The inexperienced teacher should seek expert

advice in this matter. It is, of course, essential that each student should be in possession of his own textbook for the particular grade at which he is working.

A stock of typewriting ribbons should always be kept. Very many typewriting teachers, with a false idea of economy, insist upon ribbons being used on the machines until they are almost worn into shreds. Single colour ribbons should be used—black is the most economical and the most lasting colour—and when the top part of the ribbon is faint it should be turned so that the bottom part is brought into use without the aid of the bi-chrome device, which, when adjusted for the bottom part of the ribbon, results in a slight difference in the degree of touch on most machines, owing to the ribbon vibrator having further to travel. The ribbon should be changed immediately the type impressions begin to appear faint. The stock of ribbons should be kept in an air-tight tin.

To the details mentioned in this chapter, the individual teacher will, of course, add whatever additional equipment he may deem necessary. Broadly speaking, there should be nothing in the typewriting classroom which does not concern the immediate instruction.

CHAPTER XXVIII

QUALIFICATIONS OF THE TEACHER

§I. OPERATIVE ABILITY

IN the organization of the Business Training School, and of the commercial classes of other institutions, the question of the essential qualifications of the typewriting teacher is frequently treated with relative unimportance. It is within my own knowledge that, in this country at all events, it is possible to find more inefficiency, from the operation point of view, in the typewriting classroom than in any other department of commercial education. The reason can be partly traced, in the case of educational establishments, to the tendency to overlook the importance to-day of the vocational value of typewriting as a subject, and thus to place it in the non-educational category. In the case of the business training schools the reason can frequently be traced to other causes which need not be discussed in the present work.

The first qualification of the typewriting teacher is expert ability in operation of the machine. It can certainly be stated that Touch Typewriting cannot be efficiently taught by any teacher who is not, or has not been, an expert operator. It is not possible to teach the principles of Touch without a practical knowledge of the many phases of the subject, as dealt with in the present work. An unhappy compromise is often made, and the inexperienced teacher produces typists capable of operating the machine with a certain degree of speed, and, aided by an eraser, with sufficient accuracy to enable him to take

a position. Owing to the constant demand for junior typists a position is generally waiting for him, but the student of this nature holds the low-paid post, and secures advancement, only if other qualities are developed, or if, on discovering the handicap of inexpert operation, a course of training is taken under a skilled teacher. One can quote innumerable instances of these cases.

That the expert operator would be as useless as the untrained operator, unless he has the ability to teach, is equally true. It is one thing to know a subject—another thing to teach it. But despite opinions often heard to the contrary, it is impossible to teach any practical subject without a knowledge of that subject. Even that frequently used method of "keeping one lesson in advance of the student" cannot help the Touch Typewriting teacher. Yet, how often we find such subjects as typewriting and shorthand at the mercy of teachers so situated!

No effort should be spared by the teacher or prospective teacher of typewriting to acquire skill in the operation of the machine. The art of teaching has received so much attention by educational authorities and textbook publishers of recent years that again the general principles of teaching are within the reach of all. The art of teaching Touch Typewriting, however, has not received the same amount of attention, and the ambitious but incompetent teacher should seek advice from expert teachers, or from whatever source he may find at his disposal, and endeavour by every means in his power to remove whatever handicap he may be working under in regard to the work of the typewriting class-room. The teacher should keep his machine knowledge completely up to date by reading regularly such

periodicals as *Pitman's Office Training* and *Pitman's Business Education*, the *International Export Review*, a journal devoted mainly to the activities of the typewriter trade, and *The Office*, which is also a source of up-to-date machine knowledge.

§2. ADDITIONAL KNOWLEDGE

The subject of typewriting, however, is not limited to Touch operation, and the wide scope of the subject renders it essential that the teacher should supplement his operative ability, and his power to demonstrate and impart that ability to others, with a more or less detailed knowledge of all that comes within the scope and the duties of the business typist. ✓

There are, of course, schools where this additional knowledge is not directly essential to the teacher of Touch Typewriting, and where Touch training is treated with a correct regard to its importance by being placed in the hands of a skilled Touch teacher who does no more than produce Touch operators. But cases of this kind are rare, and, in any event, the teacher is at a far greater advantage in every respect if he is in possession of the additional knowledge essential for the complete training of the typist.

Next to "machine" knowledge, English must certainly be treated as important, since the typist whose English is poor must fail to reach the efficiency stage if proper attention is not given to whatever weaknesses he may display. To some extent, also, English in its relation to Commerce requires special study and practice, and even if the typewriting teacher is not concerned with this department of instruction he will find a knowledge of it essential in certain phases of the training.

Third in importance to the typewriting teacher is a knowledge of Office Practice. There are commercial terms, commercial documents, office methods, and other details of a practical nature, without a knowledge of which the teacher is again handicapped in the complete training of the typist. It is true that to some extent a knowledge of such details, so far as their relation to the typewriter is concerned, is obtainable from the copying of such examples as may occur amongst the exercises of a good typewriting textbook, but the teacher who is not in an authoritative position to advise his students in the important points which come under discussion in the typewriting classroom must either impart doubtful knowledge, or must place himself at a grave disadvantage throughout the whole of his classroom life. Even the teacher whose duties are limited to Touch operation can approach his work with a higher standard of efficiency if he has always before him a realization of the final work of the trained student.

A knowledge of Book-keeping should be a further acquisition of the typewriting teacher. He should have, at all events, a detailed knowledge of this subject sufficient to enable him to impart instruction in the typewritten invoice, statement of account, and the production of the balance sheet. The teacher should not be content to be a mere trainer of copyists, or be compelled to treat his instruction from that point of view. This does not mean that the typewriting teacher should necessarily be capable of giving instruction in book-keeping. It does mean that he should be able to give the "reason why" for whatever typewriting instruction he may impart.

That the teacher of typewriting should make it his

there is every possibility of securing for the typewriting room a teacher with this additional advantage. And in our Evening Continuation Schools, and in day schools where specialist teachers are employed, it is again possible to secure the teacher with practical business experience. If the teacher with practical experience can be persuaded to become an expert operator, a student of teaching principles, and especially of the teaching of Touch Typewriting, there is no question that the success of the student is assured, and that the prospective typist would enter the business office with a real standard of efficiency.

The personal qualities of the typewriting teacher may justifiably be included in a discussion of his qualifications. The expert, well-informed teacher is aided not a little by the development and expression of a pleasing personality and manner. The atmosphere of the typewriting room, filled with the noise of machines, intensified by the nervous pressure induced by concentration upon the formation of small habits, the occasional harassed feelings of students finding some phase of the work difficult to acquire, is not always of the happiest. The teacher may easily increase the difficulties of the student by adopting an attitude of impatience, or by relaxing either permanently or temporarily his calmness, his personal charm, his interest, and his quiet determination, which, amongst other essential qualities of mind, go to make not only the successful teacher but the successful disciplinarian.

The typewriting teacher's attitude towards his students should always be one of advisor rather than of teacher. He should never "command." A student's occasional incapacity to do the right thing

should never cause the teacher to offer reproach. It is far better in the mechanical work of the typewriting room to suggest to the student that he rests a moment, or works upon some easier task, and "tries again" later—always with the assurance from the teacher that the student is bound to succeed with the detail presently. The typewriting classroom is not the place for a feeling of tense discipline.

This does not mean that the teacher should not be able to command the respect and good behaviour of his students. The real and successful teacher, who knows how to handle his students, how to instruct them, and how to keep them employed and interested, has never any cause to consider this aspect of discipline, whether his class is composed of a few or of many students. Only when the instruction is taking the form of typewriting drill or class practice should the teacher use some form of "command"—that is to say, he should then have an understanding with his students that they shall act at his word of command, in order that concerted action shall be possible. I have seen many good typewriting teachers severely handicapped by a lack of ability in the important question of the handling of the class; and, once the teacher has lost the respect of his students, or destroyed the good feeling of the class as a whole, it is practically irrecoverable.

§4. TEACHERS' EXAMINATIONS

The teacher who seeks, for purposes of advancement or appointment, paper qualifications as a teacher of typewriting, should give consideration to the examinations for the teachers' diplomas of the Faculty of Teachers in Commerce, and the Typists' Section of the Incorporated Phonographic Society.

Usually the papers of these societies are of a searching nature, and require the candidate to submit proof not only of operative ability but of teaching ability. The best candidate for examinations of this kind is he who is an expert operator with two or three years of actual teaching experience. The teacher should also make a point of taking the Royal Society of Arts' Examination for the First-class Certificate in the Advanced Stage of Typewriting, and the higher certificate of the London Chamber of Commerce. These certificates are accepted by some authorities as qualifications for teaching appointments, although neither of them includes a test of the candidates' teaching abilities. These examinations do, however, provide the teacher with a further paper qualification, and give him personal experience of important typewriting examinations to be taken by his students. The value to students of such certificates as those issued by the Royal Society of Arts and the London Chamber of Commerce cannot be over-estimated; every year they become more and more acceptable to business employers as evidence of an applicant's standard of attainment. The teacher should undoubtedly be in a position to train his students to gain these certificates. And, gradually, additional importance is being attached by these examining bodies to complete efficiency in operation as apart from the present high standard of typewriting knowledge demanded.

CHAPTER XXIX

TYPEWRITING IN THE EVENING SCHOOL

§ I. A DIFFICULT PROBLEM

THE problem of providing efficient training in typewriting in the evening schools is a far greater one than the problem in any other kind of school, or in any other subject, and the teacher whose work is confined to the evening school would be well advised to give considerable thought to the best methods of producing the desired results. I am not concerned, for the moment, with the evening instruction given either in the well-equipped training centres or in the privately-conducted commercial evening classes of the smaller school. But where the problem may be regarded as really acute is in those evening schools conducted under municipal and other local authorities.

It is a problem which, one may safely say, has exercised the minds of the authorities from the time when typewriting instruction was first introduced into the curriculum of these schools. That business training, and its incorporated subjects of shorthand and typewriting, should be accepted as essential subjects of instruction in these schools is profoundly true. It is the fact that municipal schools and similar institutions have been the means of providing some hundreds of boys and girls with a splendid start in a career which might otherwise have been beyond their capacity or means.

The majority of the subjects have been easily and satisfactorily handled in these schools, but in very

many cases typewriting cannot perhaps be said to have earned the same comment. This is not to say that there are not many instances—some within my personal knowledge—of quite successful evening school classes in this subject. It is to say, however, that as a whole the subject of typewriting in the evening school cannot be regarded as a success.

The contributory causes of this unsatisfactory condition are *not* far to seek. There is frequently the difficulty of equipment; the expert teacher is not always easily found; the lessons are not frequent; and the facilities for practice are either few and far between, or are non-existent. Further, there is so great a variety in the type of student in attendance, both in regard to intelligence and educational attainments, and frequently in regard to previously acquired knowledge of the subject, that the average evening school organizer must, indeed, find himself perplexed. It is probably one of the most difficult problems of class organization to be met with in the whole scheme of evening school instruction.

The average evening school—and one must discuss the average, and not the fortunate exception—is compelled to remain content with providing machines, textbooks, and instructors, and with these facilities at the disposal of the students, to allow the individual student to make the best possible use of them. This method has been only partly successful. It has certainly given the determined student the means of acquiring familiarity with the typewriter and some degree of skill in its use. It has in many instances enabled students to enter offices, at all events in a junior capacity. But that it can be said to have produced Touch operators, or capable office typists, is true only of the occasional exception

again, and not of the average. That the method has produced many failures who have been obliged to abandon their ambition, is all too frequently true.

§2. A PROBLEM OF ORGANIZATION

The municipal evening school, considered in the light of a continuation school, must be regarded by all thinking people as a most valuable institution of the State. It fulfils a splendid purpose in placing within the reach of the people educational and vocational training opportunities that might otherwise be outside the scope of both ambition and means. I include ambition because, amongst other things, the evening school advertises continued education and its advantages far more widely than any other class of institution. Because of these facts the thinking person who has at heart the welfare of the younger generation—and in our case the future office worker—is disposed to be eager that every opportunity should be given for the successful outcome of every branch of the work. The best surroundings, the best methods, and the best instructors should be provided, and usually are provided, for every subject, whether it be vocational or purely educational. Expert and experienced instructors in the practical subjects of the evening school courses are not always readily procured. So far as subjects such as shorthand and typewriting are concerned, a scheme of teacher-training would go far towards solving that part of the problem, and would probably be welcomed by the interested teachers or prospective teachers.

The difficulties of class organization, however, require more careful consideration, and the suggestions contained in this chapter, although they are the

outcome of a practical knowledge and considerable application to the problem, are offered only as suggestions, and not as a solution. It would be a courageous man who said that he had solved a problem which, because of the existing conditions, will remain insolvable so long as the conditions remain unchanged. The teacher, or organizer, however, with a close knowledge of his own individual conditions, may read the suggestions in this chapter with a view to ascertaining how far they may be applied to his own particular task.

The equipment of the average evening school is generally limited by conditions not within the teacher's control. It must be confessed that machine equipment, at all events, is frequently inadequate; but, whatever equipment the teacher is allowed, it is a "fixed quantity," and some attempt should be made to adapt his use of the equipment to that fixed quantity. In this instance, his use of equipment is governed by the number and nature of his students. This is always a movable and uncertain factor, thus adding to his difficulties. Nevertheless, the problem must be attacked in this light, and, as has already been recommended in the case of the ordinary business training school, the teacher or the organizer should put down on paper the essential details of the conditions under which he must work.

These details may be summarized as follows—

1. Number of students
 2. Number of classes
 3. Number of evenings per class per week
 4. Number of teachers
 5. Textbook facilities.
 6. Student practice facilities.
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§3. AN ILLUSTRATION

Solely in order to illustrate a method of dealing with the problem, and not as a solution, let us take a case of an evening school with eighty typewriting students, in attendance at the same time, and twenty machines. Let us assume that these eighty students are able to adapt their study evenings or their attendance at other classes to the requirements of the typewriting classes. The details of this assumed case would, perhaps, be found to be—

1. Number of students	.	.	.	80
2. Number of classes	.	.	.	4
3. Number of evenings open	.	.	.	2
4. Number of teachers	.	.	.	2
5. Textbook facilities	.	.	.	1 per student.
6. Practice facilities	.	.	.	1 hour per evening.

Bearing in mind that we are assuming that the students are at our disposal on both the evenings, and that the students are prepared to attend both evenings, the next problem is the individual typewriting attainments, if any, of the students. We will classify these in this way—

- Group A. 20 students commencing a Second Year Course.
- Group B. 20 students commencing a second " term."
- Group C. 20 students with varying knowledge gained from other sources.
- Group D. 20 beginners.

Group A, if a definite system has been in vogue, presents no problem. Group B may be composed of students whose progress during the preceding term has varied, but it should present no real problem. Group C is a new and unknown problem. Group D again presents no problem; it starts *de novo* under whatever system may be devised.

With the above conditions, we would have the

following time-table. It should be noted that only one hour's instruction is given to the same class each evening.

	TUESDAY				FRIDAY			
	Practice period		Lesson period		Practice period		Lesson period	
	6-6.30	6.30-7	7-8	8-9	6-6.30	6.30-7	7-8	8-9
1st Teacher	D	A	D	A	D	A	D	A
2nd Teacher	B	C	B	C	B	C	B	C

The practice periods above would be better arranged if the machines were available for half an hour's practice prior to the first lesson each evening, and half an hour following the last lesson of each evening, when the lessons and practices could be made to run consecutively. The first teacher, here considered the senior or more experienced, is given the new students and the advanced students. The second teacher is given the comparatively easy group, whose preliminary stage has been completed, and the mixed group who must be given more or less individual instruction, unless (a) they are non-touch operators anxious to learn the Touch method, and therefore transferred to group D, or placed in a new beginners' group, or (b) they are Touch operators seeking revision or advanced work, and capable of being transferred to Group A, if there are vacancies.

There must naturally be cases where such a grouping as this is practicable just as it stands, but there must also be many where the above illustration will more probably strike the teacher as decidedly impracticable in his own particular instance. It

will be seen, however, that in this illustration, there are only ten machines available for the twenty students of each class. This necessitates the division of the instruction period, and unless this is done there must still be that old bogey of competition for machines, or waiting for machines. With a class of twenty students the teacher, faced with one machine for every two students, and no organization, has an impossible task. The students who arrive first in the typewriting classroom are fortunate enough to secure machines, and the remainder must be compelled to stand idly by, not a little unhappy in their failure to secure a machine. Chaos and failure are the inevitable result. Fortunately, organization is not impossible in such circumstances. In the above illustration, for instance, the teacher will divide his class into two sections of ten students—I have used round numbers throughout this illustration in order to simplify the statement. Both sections would arrive in the classroom at the same time: Section A would occupy the first half an hour at the machine, whilst Section B would occupy the back part of the room and would be employed upon textbook study of a definite and practical nature. At the end of the half hour, the sections would be changed. It may be explained that although the only right place for typewriting instruction is at the machine, there are many ways in which textbook or “theory” study may be made both valuable and interesting, even in the beginning stages.

Practical teachers, with their own trying experiences looming largely before them, will argue that such a method as this—since the employment of two teachers to a class is highly improbable—brings forward the question of discipline. I have every

sympathy with the teacher who is troubled with problems of discipline, but I often feel that the student is not always the real difficulty in this matter. The vocational-training teacher, and especially the typewriting teacher, has an easier task than most untrained teachers in this respect, if he would seek to use his influence rather than his "power." It is not within the scope of this book, however, nor is it my place, to discuss a question which to many teachers is naturally simple and to others deplorably hard.

§4. THE REAL SOLUTION

The above illustration is given to help the inexperienced teacher to find a method of organizing his own class, and not with the suggestion that his own conditions may be even adaptable to those given. I am convinced that the only solution to the problem of the typewriting work in the evening schools lies in the complete reconstruction of the conditions under which students are accepted for instruction in a subject in which equipment plays so important a part. In other words, the first consideration in regard to the formation of classes must be the number of machines at the disposal of each class. In addition to this there are certain fixed standards or conditions which must be laid down, if successful training is to be placed within the bounds of possibility. The problem may be found to arise through the authorities endeavouring to adapt their circumstances to the demands upon those circumstances, instead of seeking to adapt the demands to the available circumstances. This will be better understood by the reader if he examines the brief summary given here of what I consider to be the only way in which

typewriting instruction in our evening schools may be made generally successful. It is not possible to formulate a complete scheme, nor is it perhaps desirable, but I do not hesitate to set down the general conditions which should govern these particular classes—

1. That a certain standard of attainment in English is made an absolute condition of acceptance for the typewriting class.

(The plan generally in existence is that, if the student is below any accepted standard, he is advised to combine English study in his course. The alternative suggested will not delay any student's ultimate typewriting success.)

2. That the student is not accepted for a class already "filled." In this respect "filled" applies to machine equipment.

3. That the student is not kept at the machine for more than one hour on any evening of attendance.

4. That the work is properly graded for each class, and that students are not accepted in any class unless their standard is in accordance with the grade of that class.

5. That a minimum of two hours' instruction weekly, supplemented by one hour's practice, must be taken by the student, supplemented further by a definite scheme of home study.

6. That no attempt is made to regard typewriting as a part of any course. This for reasons of class organization. That is not to say that a student is precluded from taking other subjects.

7. That students are accepted only if vacancies exist for their particular grade, and only if they are able to attend on the evening and hours allotted to that particular grade. That is to say, if a student

declares that he cannot attend on such and such an evening or that he is unable to abandon another important subject, his failure to adjust his personal calls or his other subjects to the typewriting timetable must close the application.

The object of such a plan as this is to enable the teacher or the organizer to have only "fixed quantities" to deal with throughout the whole of the scheme. The suggestions, read in the light of the regulations of some of our leading state-controlled evening schools, may appear either impracticable or undesirable. But there are two points to observe: (1) No system of instruction in a practical subject in the evening schools should be allowed to suffer through consideration for "student hours"—that is, from the point of view of the attendance record and its consequent advantages to the institution; and (2) Unless a serious view of the training is taken, as to limitation of hours, control of study and attendance, etc., the success of a limited number of real students is being completely sacrificed in order to provide for an unlimited number of unsuccessful students.

In other words, instead of producing a large maximum number of half-trained students or complete failures, an attempt should be made to produce a small maximum amount of definite successes. Immediately such conditions as those enumerated above were put into operation the problem of class organization would become comparatively easy of solution, and it would be found that there would be keen competition for acceptance in the classes. Limitation of entry, and successful training, would draw a constant stream of the right applicants.

CHAPTER XXX

ABRIDGED SYLLABUS OF OPERATION COURSE

THE following syllabus is concerned solely with the operation of the machine, and may be termed a Preparatory or Elementary Course. Its purpose is to enable the student to become a master of keyboard operation and machine manipulation, and it should form the basis of all typewriting instruction.¹

To some extent this is already done by every typewriting teacher, but it has frequently been my experience that the teacher endeavours to cover the ground in a few days and makes little or no effort to secure actual mastery of the keyboard.

Immediately a student is allowed to pass on to a new group of keys, or an increased rate of key depression, without complete mastery of the previous group at a given rate of operation, the student's difficulties are increased enormously, and he is farther away from keyboard knowledge and accurate operation than before.

The object of reproducing this syllabus of instruction in operation is to emphasize the necessity to control the student's progress at the keyboard and to urge the exclusion of all other forms of typewriting instruction and practice until the student can pass the required test.

In a sense, typewriting instruction may be said to begin when this stage has been definitely reached. Under expert guidance the student should reach the fifty-word-a-minute stage, *with accuracy*, in a maximum period of fifty hours' instruction. The

¹ A complete syllabus is given in my book *Notes of Lessons on Typewriting*.

important words are "with accuracy." Given correct methods and intensive and controlled work—not too much to ask if the teacher is serious in his desire to equip his students thoroughly—the student should be incapable of error at this rate of speed upon ordinary straight-forward copying.

When this stage has been reached, the teacher will find that the average instruction book will provide him with an excellent course of lessons in the essential details of typewriting production, which should be carefully graded in accordance with the sound principles discussed in the final chapters of this book.

Speed development should take its proper place side by side with the further instruction; and throughout the training, until the student passes into the advanced stage of the work, the teacher should continue to control all details of operation, including the rate of speed.

Finally, every hour of instruction needs a minimum of one hour's practice. It has often been said to me by teachers that many students can "produce a perfect copy of an exercise" well within the time I may have recommended. In the early stages of the work the object is not to produce a perfect copy of an exercise, or even two or three perfect copies, but to fix the essential movements in the mind. This is but another instance of the way in which the textbook's favourite instruction is misunderstood, namely, "type three copies of the following exercise"! If the movements are not repeated, both during the process of learning and after they have been acquired, the finger movement memory cannot possibly be trained. Repetition of the right kind, properly directed, is an essential part of keyboard learning.

SYLLABUS OF LESSONS

First Grade

LESSON 1. Introduction to machine. Brief descriptions of keyboard, key banks, relationship of the fingers and keyboard, and the guide keys. Insertion of paper: paper guide: paper holders: how the carriage moves: the printing point: fixed margins. Position at machine: position of fingers on guide keys: Finding the individual guide keys at will. Depressing the guide keys.

LESSON 2. Position at machine: relationship of arms, hands, and fingers at guide keys. "Finding" the guide key row: "Finding" the individual guide keys. Guide key practice.

Independent finger action—preliminary practice.

LESSON 3. Guide key exercises.

LESSON 4. Guide key exercises, including "G" and "H." At end of lesson, give preliminary music-aided drill practice.

LESSON 5. Exercise on guide keys in relation one to the other, completing with words on the guide key letters. Further music-aided practice.

Second Grade

LESSON 6. Third bank keys.

LESSON 7. Consolidate knowledge of third bank keys and association with guide keys.

LESSON 8. Exercises and music-aided drill on combinations and words composed of letters of second and third banks.

LESSON 9. First bank keys.

LESSON 10. Complete association of first bank keys with second bank.

LESSON 11. Complete association of first bank keys with third bank.

LESSON 12. Complete association of the three banks of keys.

LESSON 13. Fourth bank keys (figures) and guide keys.

Third Grade

LESSON 14. Keyboard practice: complete associations, with aid of alphabetical association exercises.

LESSON 15. Cultivation of touch, with aid of guide key exercises and gramophone drills on complete keyboard, up to two strokes a second.

LESSON 16. "Freed" finger practice on guide keys, with touch development.

LESSONS 17, 18, 19. "Freed" finger practice on complete keyboard, with touch development.

LESSON 20. Shift key, preliminary practice, with first exercise.

- LESSON 21. Shift key practice, development with further exercises, including additional upper-case characters.
- LESSON 22. Word practice with use of shift key.
- LESSON 23. Rhythmic drill.
- LESSON 24. Alphabet drill.
- LESSON 25. Carriage-return drill.
- LESSON 26. Carriage-return and shift-key practice.

Fourth Grade

- LESSON 27. Short word sentences for development of touch and development of punctuation keys and space bar.
- LESSON 28. Development of exercises, etc., from two strokes a second to four strokes a second.
- LESSON 29. Easy sentence copying at the varying rates.
- LESSONS 30 to 39. Carefully selected and properly graded word practice and straightforward copying up to a minimum of 50 words a minute (accurate).

NOTES

(a) The above syllabus restricts the student's work to keyboard operation and machine manipulation alone.

(b) Each exercise may commence at the rate of one stroke a second and be developed to four strokes a second—equivalent, approximately, to 50 words a minute.

(c) No details as to number of days occupied by each lesson have been given. The teacher should be guided by the accuracy standard alone, passing out successful students periodically, and retaining or putting back the unsuccessful students.

(d) Evening school teachers, under existing conditions, can do no more than arrange a modified course of operation training, but if students can be enrolled for a skill development class, the above plan might well be adopted.

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